CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

Block for Internal Partition

Assessment Standard

(Version 1.1)

Last updated: 1 April 2019

Block for Internal Partition

Summary of Assessment Criteria

CORE CRITERIA

<table>
<tr><th>Criteria</th><th>Requirements</th><th>Verification</th><th colspan="2">Points</th><th>Index</th></tr>
<tr><th></th><th></th><th></th><th>Basic</th><th>+Bonus</th><th></th></tr>
<tr><td>Product Information</td><td>Applicant shall provide the following product information on the product packaging, catalogue and/or company website for compliance:
Basic product specifications
The intended use of the product
Instructions for correct use and storage to maximise the lifetime of the product
Recommended maintenance instructions for the product
Installation method
Instructions for consumer product disposal
Country of origin</td><td>Documentation including, but not limited to, product label, product catalogue, MSDS, and written declaration</td><td>5</td><td></td><td>4.1.2 (page 4)</td></tr>
<tr><td>Heavy Metals</td><td>Product shall not contain the following heavy metals that exceed below limits:<table><tr><th>Heavy Metal</th><th>Limit (mg/L)</th></tr><tr><td>Arsenic</td><td><5</td></tr><tr><td>Barium</td><td><100</td></tr><tr><td>Cadmium</td><td><1</td></tr><tr><td>Chromium VI</td><td><5</td></tr><tr><td>Lead</td><td><5</td></tr><tr><td>Mercury</td><td><0.2</td></tr></table></td><td>Laboratory test report(s) and any production documentation</td><td>20</td><td></td><td>4.2.1 (page 7)</td></tr>
<tr><td>Harmful Substances</td><td>Product shall not contain the following organic compounds of environmental concern that exceed below limits:<table><tr><th>Organic Compounds</th><th>Limit (mg/L)</th></tr><tr><td>Cyanide</td><td><10</td></tr><tr><td>Organic Phosphorus</td><td><1</td></tr><tr><td>Trichloroethylene</td><td><0.3</td></tr><tr><td>Tetrachloroethylene</td><td><0.1</td></tr><tr><td>Phenolic Compounds</td><td><0.2</td></tr></table></td><td>Laboratory test report(s) and any production documentation</td><td>10</td><td></td><td>4.2.2 (page 7)</td></tr>
</table>

	The following requirements are applicable to products using rubber as raw materials: Concentration of the following phthalates in the product shall below 0.1% by weight of the product: • Bis(2-ethylhexyl)phthalate (DEHP) • Dibutyl phthalate (DBP) • benzylbutylphthalate (BBP) • Diisononylphthalate (DINP) • Diisodecylphthalate (DIDP) • Di-n-octylphthalate (DNOP)				
Serviceability	Quality, durability and performance properties of the product shall be demonstrated through at least *FIVE* testing items including, but not limited to, the followings: • Water absorption capacity • Weathering/ Freeze and thaw resistance • Compressive strength/ breaking load • Reaction/ Resistance to fire • Bending tensile strength / flexural strength • Mechanical strength / resistance • Drying shrinkage • Crushing/ Fragmentation resistance • Water vapour permeability/ water tightness • Shear bond strength / resistance • Compaction/ Load-bearing capacity • Chemical resistance • Resistance to disintegration	Laboratory test report(s) and any production documentation for all relevant quality and performance tests	**5**		*4.1.3 (page 4)*
Raw Materials	**Option A:** For concrete blocks including but not limited to dense concrete, lightweight aggregate concrete and autoclaved aerated concrete, raw materials or components of product (by weight) shall be made from combinations of recycled materials, waste materials as stated in Appendix: Table 4, the combination shall exceed the below value	Documentation including but not limited to product catalogue, MSDS, test reports and written	**10**	+5	*4.3.3 (page 8)*

<table>
<tr>
<td></td>
<td>for awarding point:
• ≥ 50% (10 basic points)
• ≥ 70% (+5 bonus points)

For <u>gypsum blocks</u>, raw materials or components of product (by weight) shall be made from combinations of recycled materials, waste materials and/or forest management certified materials, the combination shall exceed the below values for awarding point:
• ≥ 25% (10 basic points)
• ≥ 40% (+5 bonus points)

For <u>hemp blocks</u>, raw materials of product (by weight) shall exceed the below value for awarding point:

<table><tr><td>Raw materials</td><td>10 basic</td><td>+5 bonus</td></tr><tr><td>Natural waste material</td><td>≥ 60%</td><td>≥ 70%</td></tr><tr><td>Sustainable source</td><td>≥ 60%</td><td>≥ 80%</td></tr></table>
For <u>glass blocks</u>, raw materials of product (by weight) shall exceed the below value for awarding point
• 50% glass cullet (10 basic points)
• 100% glass cullet (+5 bonus points)

or

<u>Option B</u>
For <u>concrete blocks</u> including but not limited to dense concrete, lightweight aggregate concrete and autoclaved aerated concrete, the density shall be less than the following level:
• 700 kg/m³ (10 basic points)
• 400 kg/m³ (+5 bonus points)</td>
<td>declaration</td>
<td></td>
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</tr>
<tr>
<td colspan="3">Subtotal:</td>
<td>50</td>
<td>+5</td>
<td></td>
</tr>
</table>

NON-CORE CRITERIA

Criteria	***Requirements***	***Verification***	***Points +Bonus***	***Index***
Environmental Management System	Manufacturer shall possess valid certification of ISO 14001, EU Eco-Management and Audit Scheme (EMAS) or Cradle-to-Cradle.	A valid certificate issued by accredited certification body	+10	*4.1.1 (page 3)*
Sound Insulation	Product shall demonstrate sound reduction properties to 40dB.	Documentation including, but not limited to, test reports, product catalogue and MSDS	+10	*4.4.2 (page 10)*
Thermal Properties	All products shall be fit for the intended purpose and demonstrate the thermal properties.	Documentation including, but not limited to, test reports, product catalogue and MSDS	+5	*4.1.4 (page 6)*
Reuse and Recycling	Applicant shall provide information on reuse and recycling of products for compliance, including, but not limited to, the following: • Product shall not be impregnated, labelled or coated or treated in a manner preventing post-consumer recycling; • Information related to the reuse and recycling of products	Documentation of reuse, recycling and waste management of products including, but not limited to, product catalogue, MSDS and written declaration	+5	*4.4.3 (page 10)*
Energy Management	Manufacturer shall implement effective energy management policies and procedures and / or an energy management programme, including, but not limited to, the following items: • Initiatives taken to reduce energy use and improve energy efficiency • Initiatives or requirements for suppliers or contract manufacturers	Detailed policies, procedures, programs and/ or plans of energy management	+5	*4.3.2 (page 8)*

Dust Management	Manufacturer shall implement effective dust management policies and procedures and / or a dust management programme for the manufacturing plant including but not limited to the following items: • Initiatives taken for dust management covering all areas of the operation and associated activities. • Monitoring plan for controlling the particulate matters (PM 2.5 & PM 10)	Detailed policies, procedures, programs and/ or plans of dust management	+5	*4.3.1 (page 8)*
Indoor Environmental Features	All products shall obtain the features of improving the air quality, humidity and temperature.	Documentation including but not limited to test reports, product catalogue and MSDS	+5	*4.4.1 (page 10)*
		Subtotal:	**+45**	

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1. INTRODUCTION

1.1 PURPOSE

The CIC Green Product Certification *(formerly known as HKGBC Green Product Accreditation and Standards [HK G-PASS])* (herein after referred as the "Scheme") is an environmental labelling scheme owned by the Construction Industry Council (CIC) and implemented by the Hong Kong Green Building Council (HKGBC) which aims to help consumers, building professionals and policy makers identify environmentally preferable building materials and products. This Assessment Standard (hereafter referred as the "Standard") sets out the assessment criteria and their benchmarks for block for internal partition to govern the application and award of a label under the Scheme. The Standard also defines the verification methods to determine which labelling grade should be awarded to the product according to the assessment criteria.

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

Block for internal partition can place a significant burden on the environment, from raw material extraction to potential health hazards in the use phase. With increasing environmental claims of block for internal partition in the market, a more comprehensive and systematic approach to assess the environmental impacts of the block for internal partition shall be developed. The aim of this Standard is to help designers and end-users choosing greener products by conserving resources, reducing the amount of waste disposal in landfills and reducing the impact to human health throughout the life cycle of block for internal partition. The development of the assessment criteria in this Standard has made references to worldwide relevant eco-labelling schemes and some existing life cycle assessment (LCA) studies.

2. SCOPE

The scope of this Standard is applicable to all block materials serving the purpose of internal partition including precast concrete blocks, gypsum blocks, glass blocks and hemp blocks.

Product shall be complied the following requirements:

- Size: less than 1,200mm X 2,400mm or;
- Area: smaller than 2,880,000 mm^2

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). Products under the same series with different sizes, thickness, colour and shapes could be included in ONE application. Applicant should specify the production code and serial number in each application.

Subsequent application is available for products under the same product series and manufactured with the same type of raw materials, but with different ratio (formulation). The range of ratio (formulation) of products in each application shall be ± 5 % and the information of the ratio (formulation) is required for the application.

Maximum 5 (FIVE) subsequent application shall be available and the subsequent application is only eligible for applying within the validity period of the label.

Note:
Each application should specify the product code / serial number.

CIC or an appointed third party would conduct a random check of the labelled product during the validity period of the label. One of the laboratory tests listed below will be selected and performed to verify the compliance of the product with the criteria stated in the Assessment Standard. Applicant shall be responsible for the cost of the laboratory test.

3. DEFINITIONS

Applicant:	Organisation which apply for the label under the CIC Green Product Certification of the Construction Industry Council
ASTM:	American Society for Testing and Materials
BS:	British Standards
CIC:	Construction Industry Council
COD:	Chemical oxygen demand
CNAS:	China National Accreditation Service for Conformity Assessment
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 Organisation for Standardisation

MSDS: Material safety data sheet. To qualify as suitable, MSDS and information therein must not be more than 5-years old

US EPA: United States Environmental Protection Agency

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" and a "Bronze", "Silver", "Gold" or "Platinum" Label will be awarded according to the total points accumulated (see Section 5 for details). All submissions and documentation shall be endorsed by the Chief Executive Officer or other authorised persons of the Applicant to demonstrate conformance to the assessment criteria. All certifications, laboratory reports and documentations must be valid during the assessment process and labelling period. All laboratory reports 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 who has received the ISO17025 certification or relevant national accreditation systems, e.g. HOKLAS, CNAS, etc. CIC or an appointed third party would conduct a random check of the labelled product during the period of validity of the label, through laboratory test to verify the compliance with the criteria as stated in the Standard. Manufacturer shall bear the cost of the laboratory test.

4.1 GENERAL REQUIREMENTS

4.1.1 Environmental Management System

10 Points (Non-core Criterion)

Manufacturer shall possess valid ISO 14001 certificates, EU Eco-Management and Audit Scheme (EMAS) or Cradle-to-Cradle.

Note:

BS EN 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.

Cradle-to-Cradle design is a biomimetic approach to the design of products and systems. It models human industry on nature's processes viewing materials as nutrients circulating in healthy and safe metabolisms.

Verification

A valid certificate issued by local or oversea accredited certification body.

4.1.2 Product Information

5 Points (Core Criterion)

Applicant shall provide the following product information on the product packaging, catalogue and/or company website for compliance:

- Basic product specifications
- The intended use of the product
- Instructions for correct use and storage to maximise the lifetime of the product
- Recommended maintenance instructions for the product
- Installation method
- Instructions for consumer product disposal
- Country of origin

Verification

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

4.1.3 Serviceability

5 Points (Core Criterion)

Quality, durability and performance properties of the product shall be demonstrated through at least FIVE testing items including, but not limited to, the followings:

Testing items	Testing Methods/ Requirements
• Water absorption capacity	BS EN 12859: 2011, BS EN 13055-1: 2002, BS EN 13055-2: 2004, BS EN 771-3: 2003, BS EN 12620: 2002 (08)
• Weathering/ Freeze and thaw resistance	BS EN 13055-1: 2002, BS EN 13055-2: 2004, BS EN 771-3: 2003, BS EN 12602: 2008 (13), BS EN 12620: 2002 (08)
• Compressive strength/ breaking load	BS EN 771-3: 2003, BS EN 12602: 2008 (13), BS EN 1051-1: 2003, BS EN 1051-2: 2007
• Reaction/ Resistance to fire	BS EN 12859: 2011, BS EN 771-3: 2003, BS EN 12602: 2008 (13), BS EN 1051-2: 2007
• Bending tensile strength / flexural strength	BS EN 12859: 2011, BS EN 771-3: 2003, BS EN 12602: 2008 (13)
• Mechanical strength / resistance	BS EN 771-3: 2003, BS EN 12602: 2008 (13) , BS EN 1051-2: 2007
• Drying shrinkage	BS EN 12620: 2002 (08), BS EN 12602: 2008 (13), BS EN 680: 2005
• Crushing/ Fragmentation resistance	BS EN 13055-1: 2002, BS EN 13055-2: 2004, BS EN 12620: 2002 (08)
• Water vapour permeability/ water tightness	BS EN 771-3: 2003, BS EN 12602: 2008 (13)

• Shear bond strength / resistance	BS EN 771-3: 2003, BS EN 12602: 2008 (13)
• Compaction/ Load-bearing capacity	BS EN 13055-2: 2004, BS EN 12602: 2008 (13)
• Chemical resistance	BS EN 13055-2: 2004, BS EN 12620: 2002 (08)
• Resistacne to disintegration	BS EN 13055-1: 2002, BS EN 13055-2: 2004

Note:
Requirement of gypsum blocks (if applicable)

- BS EN 12859:2011

Requirement of aggregates (if applicable)

- BS EN 13055-1:2002
- BS EN 13055-2:2004
- BS EN 771-3:2003
- BS EN 12620:2002+A1: 2008

Requirement of autoclaved aerated concrete (if applicable)

- BS EN 12602:2008 +A1: 2013 2008
- BS EN 680:2005

Requirement of glass blocks (if applicable)

- BS EN 1051-1:2003
- BS EN 1051-2:2007

Verification
Laboratory test report(s) and any production documentation for all relevant quality and performance tests.

4.1.4 Thermal Properties

5 Points (Non-core Criterion)
All products shall be fit for the intended purpose and demonstrate the thermal properties in accordance with British Standards and other relevant national and international test methods including, but not limited to, the following testing methods (or later version); other related testing methods are also acceptable with justification provided by the applicant.

Requirement of gypsum blocks (if applicable)

- BS EN 12859:2011

Requirement of aggregates (if applicable)

- BS EN 13055-2:2004
- BS EN 771-3:2003

Requirement of autoclaved aerated concrete (if applicable)

- BS EN 12602:2008 +A1: 2013 2008

Requirement of glass blocks (if applicable)

- BS EN 1051-2:2007

Verification

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

4.2 HUMAN TOXICITY

4.2.1 Heavy Metals

20 Points (Core Criterion)

Product shall not contain the following heavy metals that exceed below limits:

Table 2

Heavy Metal	Limit (mg/L)
Arsenic	<5
Barium	<100
Cadmium	<1
Chromium VI	<5
Lead	<5
Mercury	<0.2

Product shall undergo a standard leaching test according to US EPA 1311 Test Toxicity Characteristic Leaching Procedure; other related testing methods are also acceptable with justification provided by the applicant.

Note:

US EPA 1311 Test Toxicity Characteristic Leaching Test is to determine the mobility of both organic and inorganic compounds present in liquid, solid as well as multiphasic samples.

Verification

Laboratory test report(s) and any production documentation.

4.2.2 Harmful Substances

10 Points (Core Criterion)

Product shall not contain the following organic compounds of environmental concern that exceed below limits:

Table 3

Organic Compounds	Limit (mg/L)
Cyanide	<10
Organic Phosphorus	<1
Trichloroethylene	<0.3
Tetrachloroethylene	<0.1
Phenolic Compounds	<0.2

Product shall undergo a standard leaching test according to US EPA 1311 Test Toxicity Characteristic Leaching Procedure; other related testing methods are also acceptable with justification provided by the applicant.

The following requirements are applicable to products using rubber as raw materials:

Concentration of phthalate in the product shall below 0.1% by weight of the product. The limited phthalates including the following types:

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

Product shall be tested in accordance with CPSC-CH-C1001-09.2 (or later version); other related testing methods are also acceptable with justification provided by the applicant.

Note:

US EPA 1311 Test Toxicity Characteristic Leaching Test is to determine the mobility of both organic and inorganic compounds present in liquid, solid as well as multiphasic samples.

CPSC-CH-C1001-09.2 is a document which provides detailed information on test methods that will be used by the U.S. Consumer Product Safety Commission's (CPSC) testing laboratory (LSC) for the analysis of phthalate content in children's toys and

child care articles covered by the standard set forth in the Consumer Product Safety Improvement Act Section 108.

Verification
Laboratory test report(s) and any production documentation.

4.3 RESOURCE CONSUMPTION

4.3.1 Dust Management

5 Points (Non-core Criterion)

Manufacturer shall implement effective dust management policies and procedures and/ or a dust management programme for the manufacturing plant including but not limited to the following items:

- Initiatives taken for dust management covering all areas of the operation and associated activities;
- Monitoring plan for controlling the particulate matters (PM 2.5 & PM 10).

Verification
Detailed policies, procedures, programs and/ or plans of dust management issued by the Manufacturer.

4.3.2 Energy Management

5 Points (Non-core Criterion)

Manufacturer shall implement effective energy management policies and procedures and / or an energy management programme, including but not limited to the following items:

- Initiatives taken to reduce energy use and improve energy efficiency;
- Initiatives or requirements for suppliers or contract manufacturers.

Verification
Detailed policies, procedures, programs and/ or plans of energy management issued by the Manufacturer.

4.3.3 Raw Materials

10 Basic Points + 5 Bonus Points (Core Criterion)

Option A

For concrete blocks including but not limited to dense concrete, lightweight aggregate concrete and autoclaved aerated concrete, raw materials or components of product (by weight) are made from combinations of recycled materials, waste materials as stated in Appendix: Table 4, the combination shall exceed the below value for awarding point:

- ≥ 50% (10 basic points)
- ≥ 70% (+5 bonus points)

For gypsum blocks, raw materials or components of product (by weight) are made from combinations of recycled materials, waste materials and/or forest management certified materials, the combination shall exceed the below values for awarding point:

- ≥ 25% (10 basic points)
- ≥ 40% (+5 bonus points)

For hemp blocks, raw materials of product (by weight) shall exceed the below value for awarding point:

Raw materials	10 basic points	+5 bonus points
Natural waste material	≥ 60%	≥ 70%
Sustainable source	≥ 60%	≥ 80%

For glass blocks, raw materials of product (by weight) shall exceed the below value for awarding point

- 50% glass cullet (10 basic points)
- 100% glass cullet (+5 bonus points)

or

Option B

For concrete blocks including but not limited to dense concrete, lightweight aggregate concrete and autoclaved aerated concrete, the density shall be less than the following level:

- 700 kg/m³ (10 basic points)
- 400 kg/m³ (+5 bonus points)

Verification

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

4.4 ECOSYSTEM IMPACT

4.4.1 Indoor Environmental Features

5 Points (Non-core Criterion)
All products shall obtain the features of improving the air quality, humidity and temperature.

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

4.4.2 Sound Insulation

10 Points (Non-core Criterion)
Products shall demonstrate sound reduction properties to 40dB.

The sound insulation test shall be tested in accordance with ISO 140-3:1995 (or later version); other related testing methods are also acceptable with justification provided by the applicant.

Note:
ISO 140-3 specifies a laboratory method of measuring the airborne sound insulation of building elements such as walls, floors, doors, windows, façade elements and façades, except those classified as small building elements.

Verification
Documentation including but not limited to product catalogue, MSDS and testing reports issued by third party or the manufacturer who has received the ISO17025 certification or relevant national accreditation systems, e.g. HOKLAS, CNAS, etc.

4.4.3 Reuse and Recycling

5 Points (Non-core Criterion)
Applicant shall provide information on reuse and recycling of products for compliance, including:

- Product shall not be impregnated, labelled or coated or treated in a manner preventing post-consumer recycling;
- Information related to the reuse and recycling of products.

Verification
Documentation of reuse, recycling and waste management of products including, but not limited to, product catalogue, MSDS and written declaration.

5. SCORING AND GRADING

The points for meeting each criterion stated in Section 4 are summarised in Table 1.

Table 1: Points to be awarded under the assessment criteria of this Standard

Evaluation criteria	***Points***	
	Basic	***+Bonus***
4.1.1 Environmental Management System		+10
4.1.2 Product Information [CORE]	5	
4.1.3 Serviceability [CORE]	5	
4.1.4 Thermal Properties		+5
4.2.1 Heavy Metals [CORE]	20	
4.2.2 Harmful Substances [CORE]	10	
4.3.1 Dust Management		+5
4.3.2 Energy Management		+5
4.3.3 Raw Materials [CORE]	10	+5
4.4.1 Indoor Environmental Features		+5
4.4.2 Sound Insulation		+10
4.4.3 Reuse and Recycling		+5
	50	**+50**
Total:	**100**	

The minimum requirement to be awarded a “Green” Label under this product category is to obtain 50 points by meeting all minimum requirements laid down in the “Core Criteria”.

Table 5: Benchmarks for grading

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

APPENDIX

Table 4

Category of recycled materials/wastes to be used as raw materials for concrete products	
Category	**Recycled Materials**
Incinerated ashes	Incinerated ashes
Waste from metal industry	Copper slag
	Steel slag
	Ceramic material
	Electric furnace slag
	Ferronickel slag
	Casting sand
	Lime/plaster
	Moulding sand
	Lime powder
Inorganic sludge	Sewer sludge
	Waterworks sludge
	Sludge at bottom of lake
Sludge generated industrially	Paper manufacturing sludge
	Aluminium sludge
	Plating sludge
	Polishing sand sludge
Other industrial waste	Coal ash
	Disposed plastics
	Shells
	Disposed lumber from buildings
	Glass cullet
	Disposed rubber
Waste from mines and quarries	Waste sand from quarries and ceramics
	Micro silica sand generated at separation of silica by water