BEAM Society Limited

Requirements on the Materials and Waste Aspects (MW) under BEAM Plus New Buildings Version 2.0

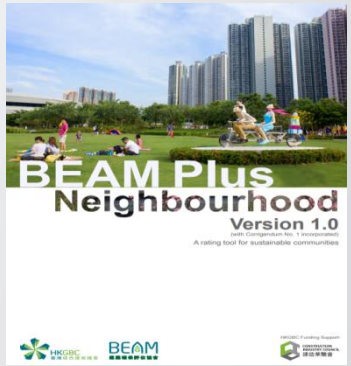
Ms Yvonne leong

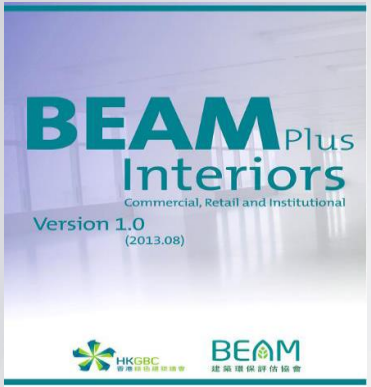
Director of BEAM Society Limited,

Materials and Waste Panel Chairperson

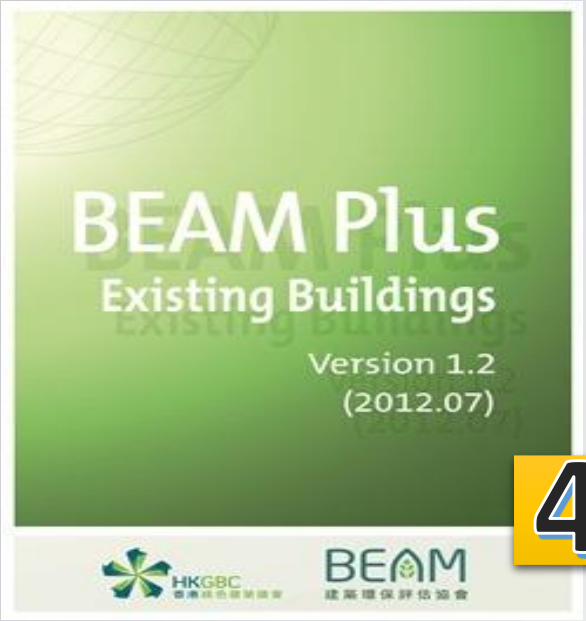
21 November 2019

BEAM Plus Assessment Tool





BEAM Plus Assessment Tool



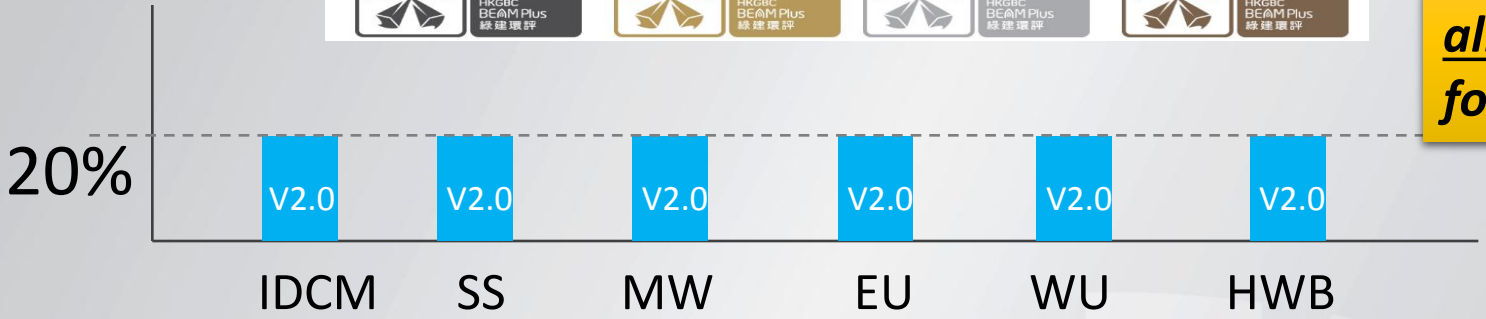
4 Sep 2019

BEAM Plus Assessment Tool

NB v1.2	Weighting	NB v2.0	Weighting
		Integrated Design and Construction Management (IDCM) New	18%
Site Aspects (SA)	25%	Sustainable Sites (SS)	15%
Materials Aspects (MA)	**8%**	**Materials and Waste (MW)**	**9%**
Energy Use (EU)	35%	Energy Use (EU)	29%
Water Use (WU)	12%	Water Use (WU)	7%
Indoor Environmental Quality (IEQ)	20%	Health and Wellbeing (HWB)	22%
	100%		100%

BEAM Plus NB v2.0

Overall score



Min. 20% at all categories for all ratings

v2.0 now allows flexibility amongst categories achievements.

After achieving the 20% threshold, project would have a greater freedom to put their commitment for the overall scoring.

BEAM Plus New Buildings V2.0

BEAM Plus NB v2.0 Categories

Bonus Credits NOW account into each respective Category, with multiplier 1.2

 Integrated Design & Construction Management (IDCM)	3P	25C	14B
 Sustainable Site (SS)	1P	20C	19B
 Materials and Waste (MW)	1P	14C	21B
 Energy Use (EU)	1P	31C	13B
 Water Use (WU)	1P	12C	3B
 Health and Wellbeing (HWB)	1P	19C	10B
 Innovations and Additions (IA)	/		10B

BEAM Plus NB v1.2
Materials Aspects : 22 + 1Bonus

MA P1	Timber Used For Temporary Works
MA P2	Use of Non-CFC Based Refrigerants
MA P3	Construction/Demolition Waste Management Plan
MA P4	Waste Recycling Facilities
MA 1	Building Re-use
MA 2	Modular and Standardised Design
MA 3	Prefabrication
MA 4	Adaptability and Deconstruction
MA 5	Rapidly Renewable Materials
MA 6	Sustainable Forest Products
MA 7	Recycled Materials
MA 8	Ozone Depleting Substances
MA 9	Regionally Manufactured Materials
MA 10	Demolition Waste Reduction
MA 11	Construction Waste Reduction

BEAM Plus NB v1.2
Materials Aspects : 22 + 1Bonus

MA P1	Timber Used For Temporary Works
MA P2	Use of Non-CFC Based Refrigerants
MA P3	Construction/Demolition Waste Management Plan
MA P4	Waste Recycling Facilities
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MA 10	Demolition Waste Reduction
MA 11	Construction Waste Reduction

Integrated Design and Construction Management (IDCM) in NB 2.0

BEAM Plus NB v2.0
Materials and Waste : 14 + 21Bonus

MW P1	Minimum Waste Handling Facilities
MW 1	Building Re-use
MW 2	Modular and Standardised Design
MW 3	Prefabrication
MW 4	**Design for Durability and Resilience**
MW 5	Sustainable Forest Products
MW 6	Recycled Materials
MW 7	Ozone Depleting Substances
MW 8	**Regional Materials**
MW 9	**Use of Certified Green Products**
MW 10	Life Cycle Assessment
MW 11	Adaptability and Deconstruction
MW 12	**Enhanced Waste Handling Facilities**

3 NEW Credits

1 Credit with UPDATES to previous requirements

BEAM Plus NB v2.0
Materials and Waste : 14 + 21Bonus

Guidance Table for Submission can be found in Manual for both PA and FA

Supporting Documents *Please provide below softcopies with filename prefix as indicated on leftmost column.*		**PA**	**FA**
MW_09_00	Submission template for MW 9		
MW_09a_01	Summary table, with product type, manufacturer, certification body, quantities The summary table shall be prepared and declared by the main contractor, and reviewed and endorsed by the project quantity surveyor.	-	✓
MW_09a_02	Specifications specifying the use of green products	✓	-
MW_09a_03	Calculations showing the percentage of certified green products purchased	✓	✓
MW_09a_04	Drawings showing the provision	-	✓
MW_09a_05	Certificate(s) of the green products	-	✓

- Specific Submittal
- **No** more DN/PO
- **No** more Dated Photo Record

Site Audit

BSL shall, in due course after consultation with stakeholders, institute a random site audit mechanism as part of the verification processes. Details will be given in an Audit Manual yet to be issued. Audit will be conducted only after the official publication of the Audit Manual and formal implementation of the audit mechanism.

BEAM Plus NB v2.0
MW P1 – Minimum Waste Handling Facilities

NB v1.2 MA P4

BEAM 建築環保評估協會

Extent of Application:

All buildings except one-single family domestic building with not more than 3 floors, or domestic part of a composite building for one single family with not more than 3 floors, or a building not normally occupied or for transient stay (e.g. pump house, sewage treatment plant, carpark building).

Objective:

Reduce waste generation at source, reduce pressure on landfill sites and help to preserve non-renewable resources by promoting recycling of waste materials

Credits Attainable:

Prerequisite

Credit Requirement:

Prerequisite achieved for meeting the minimum provisions of waste recycle facilities for the collection, sorting, storage, recycling (recovered material) and disposal (waste).

BEAM Plus NB v2.0
MW P1 – Minimum Waste Handling Facilities

NB v1.2 MA P4

Requirements/Provision for achieving the prerequisite:

(a) Operational waste management plan

(b) Waste recycling facilities

(c) Minimum types of recyclables to be collected

AREA

+

Metal

Plastic

Paper/Card

Glass

Source:
https://www.epd.gov.hk/epd/SSDW/2008/eng/ch05.html
https://www.indiamart.com/proddetail/four-wheeled-waste-bin-10863388830.html

BEAM Plus NB v2.0
MW P1 – Minimum Waste Handling Facilities

NB v1.2 MA P4

BEAM 建築環保評估協會

Space Requirements :

	Overall floor space of RS&MRC#
Residential/ Domestic	For UFS ≥1,320m², 1m² per 347m² UFS For UFS<1,320m², please refer to point 3 below.
Hotel	1m² per 347m² UFS
Retail/ Commercial/ Clubhouse	For UFS <39,600m², 2m² per 925m² UFS For UFS ≥39,600m², 1m² per 925m² UFS + 43m²
Non-residential/ Non-domestic buildings other than Retail/ Commercial/ Clubhouse	1m² per 925m² UFS

Remarks:

- UFS = Usable Floor Area
- The provision of Refuse Storage & Material Recovery Chamber (RS&MRC) is required under "Schedule" in B(RS&MRC&RC)R.
- RS&MRR shall not be included in the RS&MRC space requirement calculation. Additional areas of waste and recycling facilities provided in addition to the statutorily required RS&MRR can be counted.
- # Point 3 under Part (b) applies

BEAM Plus NB v2.0
MW 1 – Building Re-use

NB v1.2 MA 1

Extent of Application:

All buildings

Objective:

Encourage the reuse of major elements of existing building structures, to reduce demolition waste, conserve resources and reduce environmental impacts during construction.

Credits Attainable:

2 BONUS + 1 additional BONUS

Credit Requirement:

Compliance Method 1

1 BONUS credit for the reuse of 20% or more (by mass or volume) of existing structures (sub-structure and superstructure).

2 BONUS credits for the reuse of 40% or more (by mass or volume) of existing structures (sub-structure and superstructure).

For exemplary performance, 1 additional BONUS credit for the reuse of 90% or more (by mass or volume) of existing structures (sub-structure and superstructure).

BEAM Plus NB v2.0
MW 1 – Building Re-use

NB v1.2 MA 1

Credit Requirement:

Compliance Method 2

1 BONUS credit for the reuse of 25% or more (by surface area) of superstructure elements (including at least floor, roof decking) & enclosure materials (including at least skin, framing).

2 BONUS credits for the reuse of 50% or more (by surface area) of superstructure elements (including at least floor, roof decking) & enclosure materials (including at least skin, framing).

For exemplary performance, 1 additional BONUS credit for the reuse of 90% or more (by surface area) of superstructure elements (including at least floor, roof decking) & enclosure materials (including at least skin, framing).

Requirements/Provision for achieving the credit(s):

Reuse of certain percentage of major elements of existing building, substantiated by

(a) Calculation

(b) Pre and post construction information, e.g. structural drawings

BEAM Plus NB v2.0
MW 1 – Building Re-use

The Legislative Council building, Central, Hong Kong 2015

Wai Yip Street, Kung Tong 2016

From Industrial to office

Source:
https://en.wikipedia.org/wiki/Court_of_Final_Appeal_Building
http://www.archdaily.com/788814/133-wai-yip-street-mvrdv
Last view: 28/6/2016

BEAM Plus NB v2.0
MW 2 – Modular and Standardised Design

NB v1.2 MA 2

BEAM 建築環保評估協會

Extent of Application:

All buildings except for single one-storey buildings with total floor areas not exceeding 230m².

Objective:

Encourage the increased use of modular and standardised components in building design in order to enhance buildability and to reduce waste

Credits Attainable:

1 + 1 additional BONUS

Credit Requirement:

1 credit for designing modular elements which contributed at least 50% (by mass, volume, dollar value or surface area) of the major elements and modules in the project.

For exemplary performance, 1 additional BONUS credit for designing modular elements which contributed 90% or more (by mass, volume, dollar value or surface area) of the major elements and modules in the project

BEAM Plus NB v2.0
MW 2 – Modular and Standardised Design

NB v1.2 MA 2

Requirements/Provision for achieving the credit(s):

Modular design for elements which contributed at least 50% (by mass, volume, dollar value or surface area), substantiated by

(a) Calculation

(b) Design information, e.g. structural drawings

Extent of modular and standardised design checklist	
Structural elements	Structural beam system Concrete slab Concrete flooring
Facade elements	External wall Cladding unit Bay window (for residential buildings) Utility platform/ balcony (for residential buildings)
Architectural/ internal building elements	Internal partition/ wall panels Door sets Staircases

BEAM Plus NB v2.0
MW 2 – Modular and Standardised Design

NB v1.2 MA 2

Façade Units

External Wall

Source:
http://decor.966v.com/pic/29284-41960.html
http://www.gammonconstruction.com/tc/html/projects/projects-31ba7a9d6e6047a78e070cce1a240431.html

BEAM Plus NB v2.0
MW 3 – Prefabrication

NB v1.2 MA 3

Extent of Application:

All buildings

Objective:

Encourage prefabrication of building elements in order to reduce wastage of materials and quantities of on-site waste

In Hong Kong, Prefab construction is ***commonly used for Public Housing***

Image source: http://www.housingauthority.gov.hk/en/about-us/publications-and-statistics/housing-dimensions/article/20120106/infocus.html
(Last Viewed 24th April 2014)

BEAM Plus NB v2.0
MW 3 – Prefabrication

NB v1.2 MA 3

Credit Requirement:

(a) Structural Elements

1 credit when 10% of the prefabricated structural elements has been manufactured off-site.

1 additional BONUS credit when 20% of the prefabricated structural elements has been manufactured off-site.

Alternatively,

(b) Façade Elements

1 credit when 10% of prefabricated facade elements has been manufactured off-site.

1 additional BONUS credit when 20% of prefabricated facade elements has been manufactured off-site.

Alternatively,

(c) Architectural/ Internal Building Elements

1 credit when 10% of prefabricated architectural/ internal building elements has been manufactured off-site.

1 additional BONUS credit when 20% of prefabricated architectural/ internal building elements has been manufactured off-site..

1 additional BONUS credit for compliance with the requirements listed in above sub-item (a), (b) and (c).

For exemplary performance, 1 additional BONUS credit when 50% or more of the prefabricated elements in sub-item (a) or (b) or (c) has been manufactured off-site.

BEAM Plus NB v2.0
MW 3 – Prefabrication

NB v1.2 MA 3

Requirements/Provision for achieving the credit(s):

Adoption of certain percentage of prefabricated building elements, substantiated by

(a) Calculation/Summary table for prefabricated building elements

(b) Design information, e.g. structural drawings

(c) Map showing the distance between the manufacturing factory and the site

To avoid long-distance transportation, the manufacturing factory shall be located within an 800km radius of the HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation. Travel distances within the HKSAR are ignored in calculation for simplification.

BEAM Plus NB v2.0
MW 3 – Prefabrication

NB v1.2 MA 3

BEAM 建築環保評估協會

Precast Facade

Semi-precast slab

Precast Staircases

Precast Bathroom

Precast Kitchen

Precast Structural Unit

Image source: (Top left) https://www.housingauthority.gov.hk/en/business-partnerships/resources/prefabrication-in-housing-blocks/precast-facades/index.html
(Top middle) https://www.housingauthority.gov.hk/en/business-partnerships/resources/prefabrication-in-housing-blocks/semi-precast-slabs-optional/index.html
(Top right) https://www.housingauthority.gov.hk/en/business-partnerships/resources/prefabrication-in-housing-blocks/precast-staircases/index.html
(Bottom left) http://www.hkengineer.org.hk/program/articlephoto/cs_aug05_3.jpg
(Bottom middle) http://www.zn903.com/cecspoon/lwbt/Case_Studies/Tseung_Kwan_O_73A/Tseung_Kwan_O_73A.htm

BEAM Plus NB v2.0
MW 4 – Design for Durability and Resilience

New

BEAM 建築環保評估協會

Extent of Application:

All buildings

Objective:

Encourage material selection and adequate protection of exposed building elements to minimise the frequency of replacement and maximise materials optimization

Credits Attainable:

1 + 2 BONUS

Credit Requirement:

(a) Building Material Selection Appraisal

1 credit for appraisal report demonstrating a proactive approach to evaluate the durability of the building materials with at least 3 of the relevant listed items.

(b) Protecting Vulnerable Parts of the Building from Damage

1 BONUS credit for providing suitable protective measures, or designed features or solutions to prevent damage to vulnerable parts.

(c) Protecting Exposed Parts of the Building from Material Degradation

1 BONUS credit for incorporating appropriate design and specification measures to limit material degradation due to environmental factors.

BEAM Plus NB v2.0
MW 4 – Design for Durability and Resilience

New

Requirements/Provision for achieving the credit(s):

Material selected to minimise the frequency of replacement and maximise materials optimisation, substantiated by

(a) Materials Appraisal report

(b) Design information, e.g. structural drawings

(c) Information (e.g. Certificates/catalogues) to demonstrate the quality assurance or the service life of the building materials

Measures adopted to provide adequate protection for vulnerable and exposed of building elements, substantiated by

(a) Appraisal report

(b) Structural drawings

BEAM Plus NB v2.0
MW 4 – Design for Durability and Resilience

New

Highlights:

- The building material shall be certified to a specified product certification scheme by a certification body with accreditation of Hong Kong Accreditation Service (HKAS) and issued with an accredited certificate bearing a Hong Kong Certification Body Accreditation Scheme (HKCAS) accreditation symbol or a statement on the certificate.
- Local product certification schemes for quality assurance, which refer to **Product Certification for Construction Materials by Hong Kong Council for Testing and Certification**.

The report should cover at least 3 items of the following:

2.1 Timber doorsets (fire rated doors)
2.2 Panel wall for partitions
2.3 Cement products (for architectural uses)
2.4 Tile adhesives
2.5 Ceramic tiles (floor tiles and wall tiles)
2.6 Aluminium windows
2.7 Heat soaked tempered glass
2.8 Drainage uPVC pipe and fittings
2.9 Other items may be proposed at discretion of the applicant

BEAM Plus NB v2.0
MW 5 – Sustainable Forest Products

NB v1.2 MA 6

Image source: http://www.yoyowall.com/wallpaper/bamboo-forest.html (Last Viewed 29th June 2016)

Extent of Application:

All buildings, except buildings with an insignificant amount of timber products being adopted (e.g. all timber products used in the building consists of five sets of doors only).

Objective:

Encourage the use of timber from well-managed forests

Credits Attainable:

1 + 1 additional BONUS

Credit Requirement:

1 credit for demonstrating at least 30% (for residential development) and 50% (for non-residential development) of all the timber and composite timber products used in the project are from sustainable sources/ recycled timber.

For exemplary performance, 1 additional BONUS for demonstrating 90% or more of all the timber and composite timber products used in the project are from sustainable sources/ recycled timber

Requirements/Provision for achieving the credit(s):

Adoption of certain percentage of timber from well-managed forests, substantiated by

(a) Calculation/Summary table for timber product

(b) Timber product certificate

BEAM Plus NB v2.0
MW 5 – Sustainable Forest Products

NB v1.2 MA 6

PEFC™

American Forest & Paper Association

Image source:
(Top) http://www.homefrenzy.com/wp-content/uploads/2013/06/Pedrali-FSC-Logo.jpg
(bottom) http://www.gonpta.com/resource/resmgr/images/partner_afpa.jpg
(Right) http://www.forestlinkhk.com/pefc-cert/

Timber Formwork

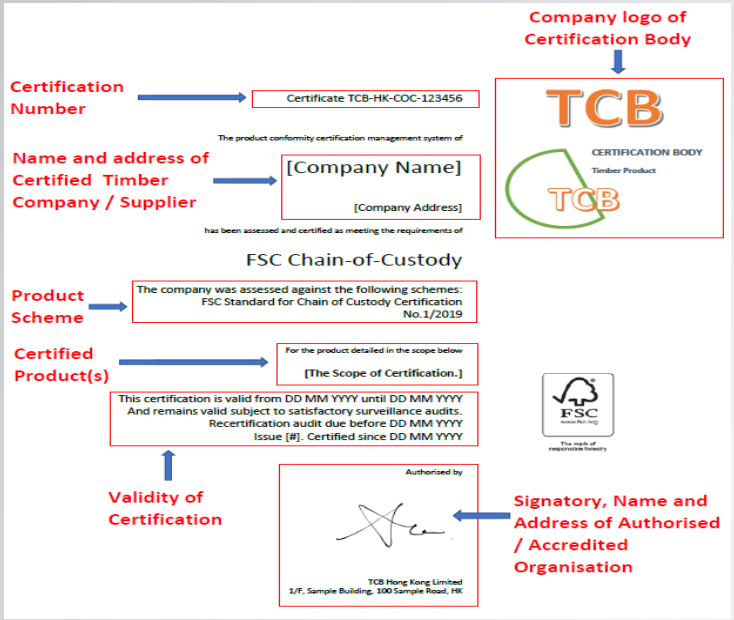
Image source:
http://www.cityu.edu.hk/CIVCAL/production/traditional/
(Last Viewed 24th April 2014)

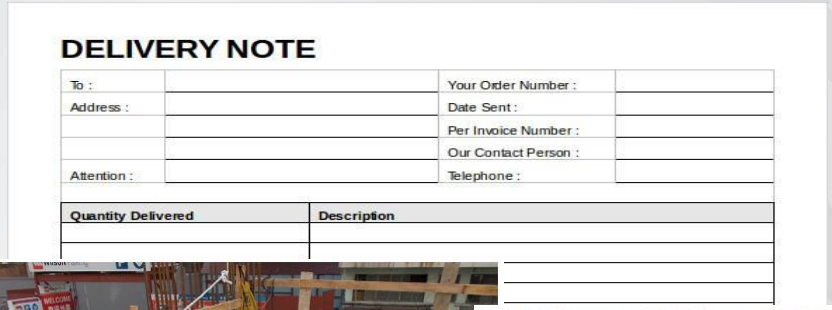
BEAM Plus NB v2.0
MW 5 – Sustainable Forest Products

NB v1.2 MA 6

Timber products are issued with the Certificate under the COC (Chain of Custody) system

1. **Timber COC Certificate;**
2. **Invoice with delivery notes;**
3. **Photographic evidence of the timber products**





DELIVERY NOTE

To :		Your Order Number :	
Address :		Date Sent :	
		Per Invoice Number :	
		Our Contact Person :	
Attention :		Telephone :	

Quantity Delivered	Description

BEAM Plus NB v2.0
MW 6 – Recycled Materials

NB v1.2 MA 7

Extent of Application:

All buildings

Objective:

Promote the use of recycled materials in order to reduce the consumption of virgin resources

Credits Attainable:

1 + 2 additional BONUS

Requirements/Provision for achieving the credit(s):

Adoption of certain percentage of building elements with contents of recycled materials, substantiated by

(a) Calculation/Summary table for building elements

(b) Drawings showing the location of adopting the selected product

(c) Information (e.g. catalogues) to demonstrate the outside surface works and structures are made from recycled materials

BEAM Plus NB v2.0
MW 6 – Recycled Materials

NB v1.2 MA 7

Credit Requirement:

(a) Outside Surface Works and Structures

1 credit where at least 10% of all materials used for site exterior surface works, structures and features with recycled content.

Alternatively,

(b) Building Façade and Structural Components

1 credit where at least 10% of all materials used for facade and structural components are materials with recycled content; OR

the use of Pulverised Fuel Ash (PFA) as a partial cement replacement in concrete that the PFA content is not less than 25%; OR

the use of Ground Granulated Blast-furnace Slag (GGBS) as a partial cement replacement in concrete that the GGBS content is not less than 40%.

Alternatively,

(c) Interior Non-structural Components

1 credit where at least 10% of all materials used for interior non-structural components are materials with recycled content.

1 additional BONUS credit for compliance with the requirements listed in sub-item (a), (b) and (c).

For exemplary performance, 1 additional BONUS credit where 50% or more of all materials used for sub-item (a) or (b) or (c) are materials with recycled content.

Updates

Examples of field application of Eco-Blocks

Image source:
https://www.housingauthority.gov.hk/hdw/content/static/file/en/aboutus/events/qualityhousing/seminar/11PolyUProfCSPoon.pdf (p.10)

BEAM Plus NB v2.0
MW 7 – Ozone Depleting Substances

NB v1.2 MA 8

Extent of Application:

All buildings

Objective:

Reduce the release of harmful ozone-depleting substances into the atmosphere

Credits Attainable:

2

Image source:
https://www.journalducameroun.com/en/botswana-blocks-import-of-ozone-depleting-substances/

Credit Requirement:

(a) Refrigerants

1 credit for the use of refrigerants with a value less than or equal to the threshold of the combined contribution to ozone depletion and global warming potentials using the specified equation.

(b) Ozone Depleting Materials

1 credit for the use of products in the building fabric and services that avoid using ozone depleting substances in their manufacture, composition or use.

BEAM Plus NB v2.0
MW 7 – Ozone Depleting Substances

NB v1.2 MA 8

Requirements/Provision for achieving the credit(s):

Selection/Adoption of refrigerants for A/C equipment, major thermal insulation and fire-retardant materials for roof constructions, walls, chilled water pipes, refrigerant pipes, ductwork, avoiding the contribution to ozone depletion

$$LCGWP + LCODP \times 10^5 \leq 13$$

LCGWP = [GWPr x (Lr x Life + Mr) x Rc] / Life

LCODP = [ODPr x (Lr x Life + Mr) x Rc] / Life

LCGWP = Lifecycle *Global Warming Potential* (kg CO2 /kw -Yr)

LCODP = Lifecycle Ozone Depletion Potential (kg CFC 11/kw-Yr)

GWPr = *Global Warming Potential* of Refrigerant (0 to 12,000 kg CO2/kg r)

ODPr = Ozone Depletion Potential of Refrigerant (0 to 0.2 kg CFC11/kg r)

Lr = Refrigerant Leakage Rate (0.5% to 2.0%; default of 2% unless otherwise demonstrated)

Mr = End-of-life Refrigerant Loss (2% to 10%; default of 10% unless otherwise demonstrated)

Rc = Refrigerant Charge

Life = Equipment Life (10 years; default based on equipment type as listed in table below, unless otherwise demonstrated)

For systems with different types of equipment, a weighted average of all the air-conditioning and refrigeration equipment shall be calculated using the following equation:

$$\lceil \Sigma\ (LCGWP + LCODP \times 10^5) \times Qunit \rceil / Qtotal \leq$$

Qunit = Gross ARI rated cooling capacity of an individual air-conditioning or refrigeration unit (kW)

Qtotal = Total gross ARI rate cooling capacity of all air-conditioning or refrigeration (kW)

BEAM Plus NB v2.0
MW 8 – Regional Materials

NB v1.2 MA 9

Updates

Extent of Application:

All buildings

Objective:

Encourage the use of materials originated locally so as to reduce the environmental impacts arising from transportation

Credits Attainable:

1+ 2 additional BONUS

Credit Requirement:

1 credit for the use of regional materials meeting prescribed requirement, which contribute at least 10% of all building materials used in the project.

1 additional BONUS credits for the use of regional materials meeting prescribed requirement, which contribute at least 20% of all building materials used in the project.

BEAM Plus NB v2.0
MW 8 – Regional Materials

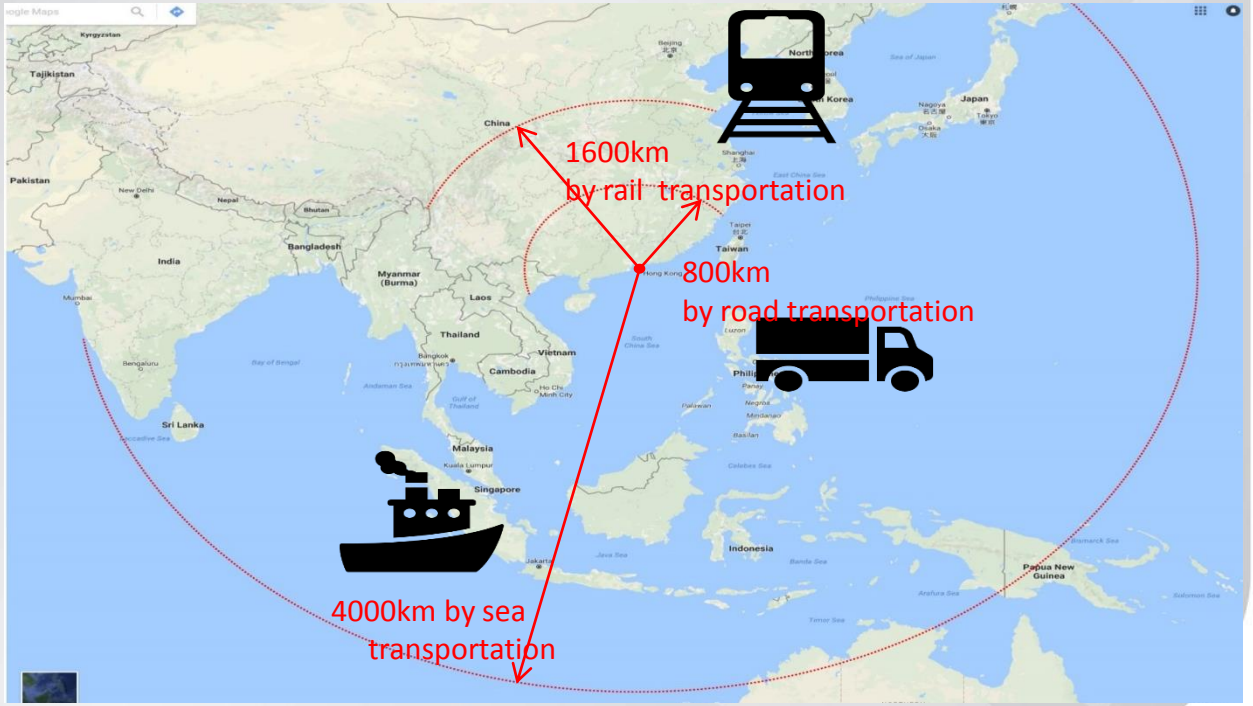
NB v1.2 MA 9

Updates

BEAM 建築環保評估協會

Requirements/Provision for achieving the credit(s):

- Adoption of regional materials meeting certain percentage out of all building materials used
- The point of manufacture shall be located within an 800km radius of HKSAR (22°17′07″ N, 114°09′27″ E) by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation.
- 22°17′07″ N, 114°09′27″ E (http://dateandtime.info/citycoordinates.php?id=1819729)



BEAM Plus NB v2.0
MW 9 – Use of Green Products

New

BEAM 建築環保評估協會

Extent of Application:

All buildings

Objective:

Encourage the use of green products that have low environmental impacts

Credits Attainable:

2 + 3 additional BONUS + 1 BONUS

Source: http://cicgpc.hkgbc.org.hk/nindex.php

BEAM Plus NB v2.0
MW 9 – Use of Green Products

New

BEAM 建築環保評估協會

Credit Requirement:

(a) Certified Green Products

1 credit for having at least 5% certified green products in one (1) of the listed categories (outside surface works, building façade and structures, interior non-structural components, and building services components).

2 credit for having at least 5% certified green products in two (2) of the listed categories (outside surface works, building façade and structures, interior non-structural components, and building services components).

1 additional BONUS credit for having at least 5% of certified green products under Construction Industry Council (CIC) Green Product Certification, Carbon Labelling Scheme/ HKGBC Green Product Accreditation and Standard (HK G-Pass) in one (1) of the listed categories (outside surface works, building façade and structures, interior non-structural components, and building services components).

For exemplary performance, additional BONUS credit for having at least 25% of certified green products under CIC Green Product Certification, CIC Carbon Labelling Scheme/ HK G-PASS in one (1) of the listed categories (outside surface works, building façade and structures, interior non-structural components, and building services components).

(b) Rapidly Renewable Materials

1 BONUS credit for demonstrating 5% of all building materials/ products of interior non-structural components in the project are rapidly renewable materials.

For exemplary performance, additional BONUS credit for demonstrating 25% of all building materials/ products of interior non-structural components in the project are rapidly renewable materials.

BEAM Plus NB v2.0
MW 9 – Use of Green Products

New

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Applicable Green Products / Materials	Qualifying %	Certified green products under CIC_CLS/ HK G-Pass ?	Basic Credit	Additional BONUS Credit	BONUS Credit
(a) - Outside Surface Works - Building façade and structures - Interior non-structural components - Building services components	5% any one	not necessary	1		
	5% any two	not necessary	2		
	5% any one	yes		1	
	25% any one	yes		1*	
(b) Rapidly renewable materials	5%	n/a			1
	25%	n/a		1	

* For exemplary performance (i.e. at least 25% of certified green product), one more additional BONUS Credit is granted on top of the one already granted for the 5% certified green products

BEAM Plus NB v2.0
MW 9 – Use of Green Products

New

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Requirements/Provision for achieving the credit(s):

Selection/Adoption of certain percentage of certified green products/rapidly renewable materials in the listed categories stipulated in the Manual.

Outside Surface Works

1.1 Use of certified green products contributing to at least 5% of all materials as listed below.

Outside surface works	i. Pavement Block ii. Stone (Natural/ Artificial) iii. Paint & Coating iv. Alternative elements proposed by the applicant.

Building Façade and Structures

2.1 Use of certified green products contributing to at least 5% of all materials as listed below.

Building Facade and Structures	i. Cement ii. Concrete iii. Reinforcing bar iv. Structural steel v. Extruded aluminum product vi. Glazing vii. Alternative elements proposed by the applicant.

Interior Non-structural Components

3.1 Use of certified green products contributing to at least 5% of any 5 items as listed below.

Interior Non-structural Components	i. Panel board ii. Ceramic tile iii. Plant-based fibre composite iv. Furniture v. Stone (Natural/ Artificial) vi. Wall covering vii. Paint & coating viii. Adhesive & sealant ix. Block for internal partition x. Synthetic carpet xi. Thermal insulation xii. Alternative elements proposed by the applicant.

Building Services Components

4.1 Use of certified green products contributing to at least 5% of all materials under either (a), (b) or (c) categories as listed below.

Building Services Components	(a) Lighting & electrical installation	i. LED lighting ii. CFL iii. Electronic ballast iv. Cable & wire v. Alternative elements proposed by the applicant.
	(b) Air-conditioning systems	i. Chiller ii. VRF split type system iii. AHU iv. FCU v. Cooling tower vi. Alternative elements proposed by the applicant.
	(c) Plumbing & drainage	i. Water pump ii. Sanitary wares-ceramic product iii. Alternative elements proposed by the applicant.

Rapidly Renewable Materials

5.1 Use of at least 5% of all building materials/ products of interior non-structural components under the following categories are *rapidly renewable materials*, such as bamboo, cork, natural linoleum, soy bean composite, strawboard, sunflower seed and wheatboard.

Interior Non-structural Components	i. Flooring ii. Panel/ partitions iii. Cabinetry/ built-in furniture iv. Insulation v. Alternative elements proposed by the applicant.

BEAM Plus NB v2.0
MW 10 – Life Cycle Assessment

NB v1.2 EU 3

Extent of Application:

All buildings

Objective:

Encourage the design of structural elements and choice of materials that results in lower embodied energy

Credits Attainable:

1

Credit Requirement:

1 credit for demonstrating the embodied energy in the major elements of the building structure of the building has been studied and optimised through a Life Cycle Assessment (LCA).

Requirements/Provision for achieving the credit(s):

LCA Report

LCA study should be conducted before construction works commencement

What is Life Cycle Assessment ?

A **Life Cycle Assessment** is an analysis of the environmental aspects and potential impacts associated with a product, process or service.

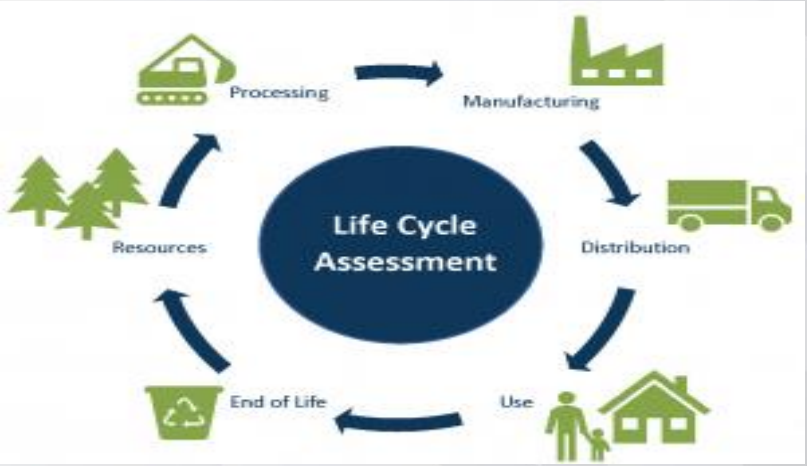

Image source:
https://www.ncasi.org/technical-studies/sustainable-manufacturing/life-cycle-assessment/
(Last Viewed 6 Nov 2019)

What is Embodied Energy?

Embodied Energy is the energy used during the entire life cycle of a product, including its manufacture, transportation, and disposal, as well as the ***inherent energy captured within the product itself.***

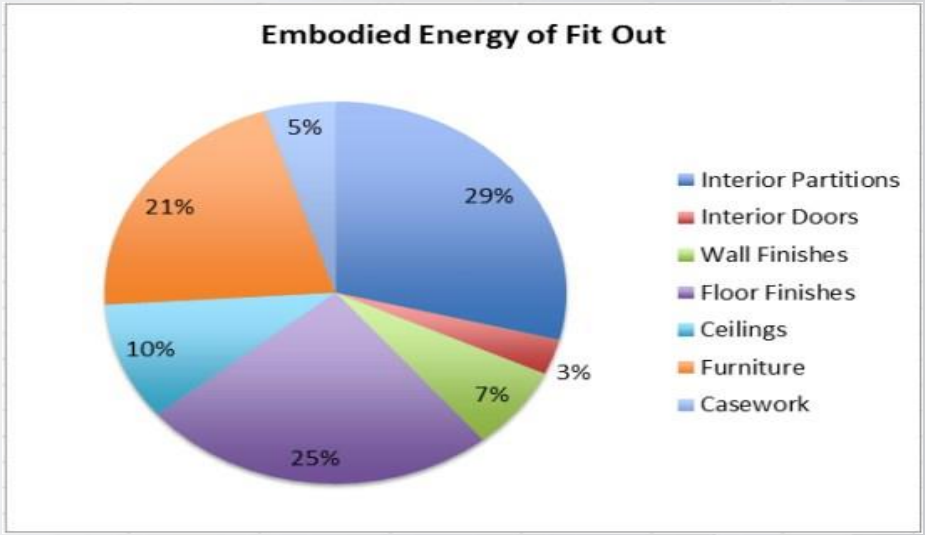

Image source:
http://www.fmlink.com/ProfResources/Sustainability/Articles/images/sustainability092812a3.jpg

BEAM Plus NB v2.0
MW 11 – Adaptability and Deconstruction *NB v1.2 MA 4*

Extent of Application:

All buildings

Objective:

Encourage the design of building interior elements and building services components that allow modifications to space layout, and to reduce waste during churning, refurbishment and deconstruction

Credits Attainable:

1 +1 additional BONUS

Image source: (left) http://assets.jaicrest.com.au/images/accessories/image001.jpg
(right) http://assets.jaicrest.com.au/images/accessories/image002.jpg
(Last Viewed 29th June 2016)

BEAM Plus NB v2.0
MW 11 – Adaptability and Deconstruction *NB v1.2 MA 4*

Credit Requirement:

(a) Spatial Adaptability

1 credit for designs providing spatial flexibility that can adapt spaces for different uses and allows for expansion to permit additional spatial requirements to be accommodated.

Alternatively,

(b) Flexible Engineering Services

1 credit for flexible design of services that can adapt to changes of layout and use.

Alternatively,

(c) Structural Adaptability

1 credit for designs providing flexibility through the use of building structural systems which allow for change in future use and is coordinated with interior planning modules.

1 additional BONUS credit for compliance with requirements listed in sub-items (a), (b) and (c).

Requirements/Provision for achieving the credit(s):

Design allowing the achievement of items for the adaptability and flexibility as stipulated in the Manual, substantiated by

(a) Calculation/Summary table for adaptability strategies applied

(b) Drawings & explanation illustrating the fulfillment of items

BEAM Plus NB v2.0
MW 12 – Enhanced Waste Handling Facilities

New

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Extent of Application:

All buildings except one-single family domestic building with not more than 3 floors, or domestic parts of a composite building for one-single family with not more than 3 floors, or a building not normally occupied or for transient stay (e.g. pump house, sewage treatment plant, carpark building).

Part (b) is applicable only when Municipal Solid Waste Charging Scheme is activated

Objective:

Encourage integrated waste management for operational reduction at source, effective sorting and collection within the site and recycling/ reuse of waste

Credits Attainable:

2 + 2 BONUS

BEAM Plus NB v2.0
MW 12 – Enhanced Waste Handling Facilities

New

Credit Requirement:

(a) Additional Recyclables Collection

1 credit for the provision of facilities for collection, sorting, storage and disposal of 2 other recyclable streams in addition to those described in MW P1.

(b) Additional Facility Provisions to Enable enhanced Municipal Solid Waste (MSW) Charing Scheme

1 credit for additional facilities for collection, sorting, storage and disposal of recyclables in addition to those described in MW P1 and MW12 part (a).

(c) Waste Treatment Equipment

1 BONUS for providing at least one set of waste treatment equipment.

(d) Alternatives to Recycling Facilities

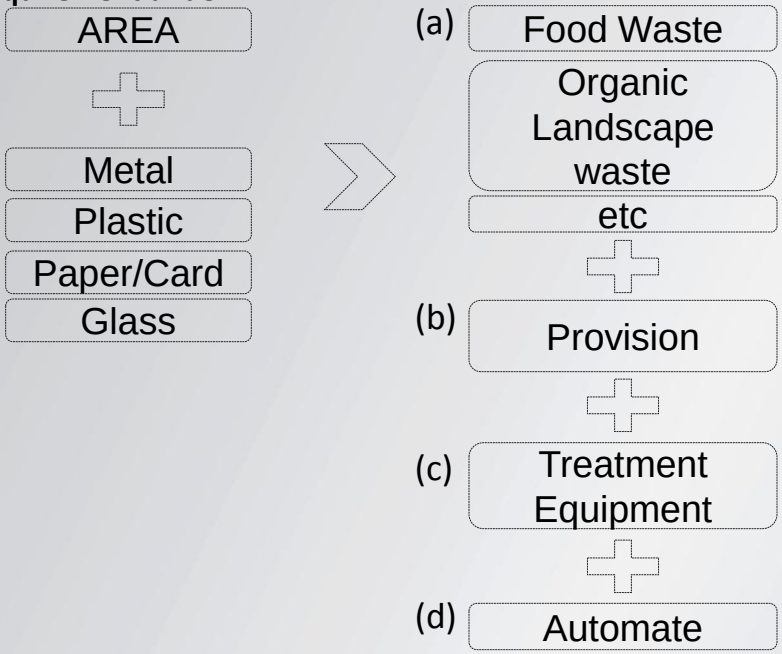
1 BONUS for provide alternative means of waste collection systems.

BEAM Plus NB v2.0
MW 12 – Enhanced Waste Handling Facilities

New

Requirements/Provision for achieving the prerequisite:

Requirement under MW P1



(a) Additional Recyclables Collection

1 credit for the provision of facilities for collection, sorting, storage and disposal of 2 other recyclable streams in addition to those described in MW P1.

(b) Additional Facility Provisions to Enable enhanced Municipal Solid Waste (MSW) Charing Scheme

1 credit for additional facilities for collection, sorting, storage and disposal of recyclables in addition to those described in MW P1 and MW12 part (a).

(c) Waste Treatment Equipment

1 BONUS for providing at least one set of waste treatment equipment.

(d) Alternatives to Recycling Facilities

1 BONUS for provide alternative means of waste collection systems.

Thank you

BEAM Society Limited
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