GBI ASSESSMENT CRITERIA
FOR
RESIDENTIAL NEW CONSTRUCTION (RNC)

VERSION 3.0 | JULY 2013

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INTRODUCTION

WHAT IS THE GREEN BUILDING INDEX (GBI)?

The Green Building Index is an environmental rating system for buildings developed by Greenbuildingindex Sdn Bhd (GSB). The Green Building Index is Malaysia's first comprehensive rating system for evaluating the environmental design and performance of Malaysian buildings based on the six (6) main criterias of Energy Efficiency, Indoor Environment Quality, Sustainable Site Planning & Management, Materials & Resources, Water Efficiency, and Innovation.

The Green Building Index is fundamentally derived from existing rating tools, including the Singapore Green Mark and the Australian Green Star system, but extensively modified for relevance to the Malaysian tropical weather, environmental context, cultural and social needs.

This GSB's GBI initiative aims to assist the building industry in its march towards sustainable development. The GBI environmental rating system is created to:

- **Define green building by establishing a common language and standard of measurement;**
- **Promote integrated, whole-building design;**
- **Recognise and reward environmental leadership;**
- **Transform the built environment to reduce the environmental impact of development; and**
- **Ensure new buildings remain relevant in the future and existing buildings are refurbished properly to remain relevant.**

WHO CAN USE THE GREEN BUILDING INDEX?

GSB encourages all members of Project Teams, Building Owners, Developers and other interested parties (including Contractors, Government, and Design and Build Contractors) to use the Green Building Index to validate environmental initiatives at the design phase of new construction or base building refurbishment; or construction and procurement phase of buildings. Use of the Green Building Index is encouraged on all such projects to assess and improve their environmental attributes.

Use of the Green Building Index tool without formal certification by an independent accredited GBI Certifier does not entitle the user or any other party to promote the Green Building Index rating achieved. No fee is payable to GSB for such use, however formal recognition of the Green Building Index rating - and the right to promote same - requires undertaking the formal certification process offered by Greenbuildingindex Sdn Bhd.

All Green Building Index rating tools are reviewed periodicity; please forward any feedback to info@greenbuildingindex.org.

PROJECT INFORMATION

PROJECT NAME		
PROJECT REGISTRATION NO.		
PROJECT ADDRESS		
	POSTCODE	STATE
CONSTRUCTION TYPE		
TOTAL GROSS FLOOR AREA (GFA)		
LAND AREA (FOR LANDED PROPERTY)		
REGISTRATION FEE (EXCLUDING GST)		
TARGETTED RATING		
TOTAL POINTS CLAIM		
EXPECTED CONSTRUCTION DATE	COMMENCED	COMPLETION
DATE BUILDING COMPLETED (NREB/IEB ONLY)		
PROJECT DESCRIPTION & MAJOR DESIGN FEATURES		

CONSULTANTS INFORMATION

OWNER'S NAME		
COMPANY		
OWNER'S REPRESENTATIVE	NAME	DESIGNATION

ARCHITECT	NAME	PROFESSIONAL REG. NO.	COMPANY
CIVIL ENGINEER	NAME	PROFESSIONAL REG. NO.	COMPANY
STRUCTURAL ENGINEER	NAME	PROFESSIONAL REG. NO.	COMPANY
MECHANICAL ENGINEER	NAME	PROFESSIONAL REG. NO.	COMPANY
ELECTRICAL ENGINEER	NAME	PROFESSIONAL REG. NO.	COMPANY
QUANTITY SURVEYOR	NAME	PROFESSIONAL REG. NO.	COMPANY
LAND SURVEYOR	NAME	PROFESSIONAL REG. NO.	COMPANY
LANDSCAPE ARCHITECT	NAME	PROFESSIONAL REG. NO.	COMPANY
COMMISSIONING SPECIALIST (CxS)	NAME	PROFESSIONAL REG. NO.	COMPANY
GBI FACILITATOR	NAME	PROFESSIONAL REG. NO.	COMPANY
OTHER SPECIALIST CONSULTANT(S)			
MAIN CONTRACTOR			
LOCAL AUTHORITY			

ASSESSMENT CRITERIA
MAXIMUM ACHIEVABLE POINTS

PART	ITEM	MAXIMUM POINTS	SCORE
1	Energy Efficiency (EE)	23	
2	Indoor Environmental Quality (EQ)	12	
3	Sustainable Site Planning & Management (SM)	33	
4	Material & Resources (MR)	12	
5	Water Efficiency (WE)	12	
6	Innovation (IN)	8	
	TOTAL SCORE	**100**	

CATEGORIES OF GREEN BUILDING INDEX RATING

POINTS	GBI RATING
86 to 100 points	Platinum
76 to 85 points	Gold
66 to 75 points	Silver
50 to 65 points	Certified

DEFINITIONS OF LANDED, LOW-RISE AND HIGH-RISE

Landed : Single Owner (Townhouse is included in this category)
Low-rise : Strata Building in which the topmost floor is ≤ 18.3m above ground level
High-rise : Strata Building in which the topmost floor is > 18.3m above ground level

SUMMARY OF ASSESSMENT
CRITERIA AND POINTS

PART	CRITERIA	ASSESSMENT CRITERIA	POINTS	TOTAL
1	**EE**	**ENERGY EFFICIENCY**		
	Design			23
	EE1	Minimum EE Performance (Mandatory Compliance)	1	
	EE2	Advanced EE Performance	12	
	EE3	Renewable Energy	5	
	Energy Efficiency			
	EE4	External Lighting and Control	2	
	EE5	Internet Connectivity	1	
	Maintenance			
	EE6	Sustainable Maintenance and Building User Manual (BUM)	2	
2	**EQ**	**INDOOR ENVIRONMENTAL QUALITY**		
	Air Quality			12
	EQ1	Minimum Indoor Air Quality Performance	3	
	EQ2	Volatile Organic Compounds Minimisation	2	
	EQ3	Formaldehyde Minimisation	1	
	Lighting, Visual and Acoustic Comfort			
	EQ4	Daylighting	3	
	EQ5	External Views	1	
	EQ6	Sound Insulation	1	
	Evaluation			
	EQ7	Post Occupancy Evaluation	1	
3	**SM**	**SUSTAINABLE SITE PLANNING & MANAGEMENT**		
	Site Planning			33
	SM1	Site Selection & Planning	1	
	SM2	Re-habilitation of Brownfield Sites ***OR*** Re-development of Existing Buildings	1	
	SM3	Community Connectivity	4	
	Construction Management			
	SM4	Earthworks – Construction Activity Pollution Control	1	
	SM5	QLASSIC – Quality Assessment System For Building Construction Work	1	
	SM6	Workers' Site Amenities	1	
	SM7	IBS – Industrialised Building System	2	
	Transportation			
	SM8	Public Transportation Access	8	
	SM9	Dedicated Cycling Network	2	
	Design			
	SM10	Stormwater Design – Quantity and Quality Control	3	
	SM11	Heat Island Effect – Greenscape and Water Bodies	5	
	SM12	Heat Island Effect – Hardscape	2	
	SM13	Heat Island Effect – Roof	1	
	SM14	Composting	1	

PART	CRITERIA	ASSESSMENT CRITERIA	POINTS	TOTAL
4	**MR**	**MATERIALS & RESOURCES**		
	Reused & Recycled Materials			12
	MR1	Materials Reuse And Selection	2	
	MR2	Recycled Content Materials	2	
	Sustainable Resources			
	MR3	Regional Materials	2	
	MR4	Sustainable Timber	2	
	Waste Management			
	MR5	Storage and Collection of Recyclables	2	
	MR6	Construction Waste Management	2	
5	**WE**	**WATER EFFICIENCY**		
	Water Harvesting & Recycling			12
	WE1	Rainwater Harvesting	4	
	WE2	Waste Water Recycling	2	
	Increased Efficiency			
	WE3	Water Efficient Irrigation and Landscaping	2	
	WE4	Water Efficient Fittings	4	
6	**IN**	**INNOVATION**		
	IN1	Innovation in Design and Environmental Design Initiatives	7	8
	IN2	Green Building Index Facilitator (GIBF)	1	
			TOTAL POINTS	**100**

1 ENERGY EFFICIENCY (EE)

DESIGN | ENERGY EFFICIENCY | MAINTENANCE AND BUILDING USER MANUAL (BUM)

23 POINTS

ITEM	AREA OF ASSESSMENT	DETAIL POINTS	MAX POINTS	SCORES
DESIGN				
EE1	**MINIMUM EE PERFORMANCE (MANDATORY COMPLIANCE)**			
	Establish minimum Energy Efficiency (EE) performance to reduce energy consumption in buildings, thus reducing CO_2 emission to the atmosphere.		1	
	Meet the following minimum EE requirements as stipulated in MS1525 1) OTTV ≤ 50 W/m², ***AND*** 2) Lightweight Roof U-value ≤ 0.4 W/m²K Heavyweight Roof U-value ≤ 0.6 W/m²K	1		
EE2	**ADVANCED EE PERFORMANCE**			
	Establish EE Performance to reduce dependence on energy to keep indoor environment at satisfactory comfort level. Computed OTTV and Roof U-value to show lower dependence on energy to maintain indoor thermal comfort.		12	
	A) Landed			
	OTTV ≤ 46 W/m², ***OR***	1		
	OTTV ≤ 42 W/m², ***OR***	2		
	OTTV ≤ 38 W/m²	3		
	Lightweight Roof U-value ≤ 0.35 W/m²K / Heavyweight Roof U-value ≤ 0.50 W/m²K, ***OR***	1		
	Lightweight Roof U-value ≤ 0.30 W/m²K / Heavyweight Roof U-value ≤ 0.40 W/m²K, ***OR***	2		
	Lightweight Roof U-value ≤ 0.25 W/m²K / Heavyweight Roof U-value ≤ 0.30 W/m²K, ***OR***	3		
	Lightweight Roof U-value ≤ 0.20 W/m²K / Heavyweight Roof U-value ≤ 0.20 W/m²K, ***OR***	6		
	Lightweight Roof U-value ≤ 0.15 W/m²K / Heavyweight Roof U-value ≤ 0.15 W/m²K.	9		
	B) Low-rise			
	OTTV ≤ 46 W/m², ***OR***	1		
	OTTV ≤ 42 W/m², ***OR***	2		
	OTTV ≤ 38 W/m², ***OR***	3		
	OTTV ≤ 34 W/m², ***OR***	4		
	OTTV ≤ 30 W/m²	6		
	Lightweight Roof U-value ≤ 0.35 W/m²K / Heavyweight Roof U-value ≤ 0.50 W/m²K, ***OR***	1		
	Lightweight Roof U-value ≤ 0.30 W/m²K / Heavyweight Roof U-value ≤ 0.40 W/m²K, ***OR***	2		
	Lightweight Roof U-value ≤ 0.25 W/m²K / Heavyweight Roof U-value ≤ 0.30 W/m²K, ***OR***	3		
	Lightweight Roof U-value ≤ 0.20 W/m²K / Heavyweight Roof U-value ≤ 0.20 W/m²K, ***OR***	4		
	Lightweight Roof U-value ≤ 0.15 W/m²K / Heavyweight Roof U-value ≤ 0.15 W/m²K.	6		
	C) High-rise			
	OTTV ≤ 46 W/m², ***OR***	1		
	OTTV ≤ 42 W/m², ***OR***	2		
	OTTV ≤ 38 W/m², ***OR***	4		
	OTTV ≤ 34 W/m², ***OR***	6		
	OTTV ≤ 30 W/m²	9		
	Lightweight Roof U-value ≤ 0.35 W/m²K / Heavyweight Roof U-value ≤ 0.50 W/m²K, ***OR***	1		
	Lightweight Roof U-value ≤ 0.30 W/m²K / Heavyweight Roof U-value ≤ 0.40 W/m²K, ***OR***	2		
	Lightweight Roof U-value ≤ 0.25 W/m²K / Heavyweight Roof U-value ≤ 0.30 W/m²K.	3		
EE3	**RENEWABLE ENERGY**			
	Encourage use of renewable energy systems to offset energy cost and promote green energy use.		5	
	A) Landed			
	Where 1 kWp is generated by renewable energy (PV or equivalent), ***OR***	1		
	Where 2 kWp or 40% of building energy consumption (whichever is the greater) is generated by renewable energy (PV or equivalent), ***OR***	2		
	Where 3 kWp or 60% of building energy consumption (whichever is the greater) is generated by renewable energy (PV or equivalent), ***OR***	3		
	Where 4 kWp or 80% of building energy consumption (whichever is the greater) is generated by renewable energy (PV or equivalent), ***OR***	4		
	Where 4 kWp or 100% of building energy consumption (whichever is the greater) is generated by renewable energy (PV or equivalent).	5		

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
EE3	**RENEWABLE ENERGY (CONTINUED)**			
	B) Low-rise *OR* High-rise (Building Energy Consumption shall apply to energy consumption at common areas only; excluding Carparks)		**5**	
	Where 3 kWp is generated by renewable energy (PV or equivalent), ***OR***	1		
	Where 6 kWp or 10% of building energy consumption (whichever is the greater) is generated by renewable energy (PV or equivalent), ***OR***	2		
	Where 10 kWp or 15% of building energy consumption (whichever is the greater) is generated by renewable energy (PV or equivalent), ***OR***	3		
	Where 20 kWp or 20% of building energy consumption (whichever is the greater) is generated by renewable energy (PV or equivalent), ***OR***	4		
	Where 30 kWp or 25% of building energy consumption (whichever is the greater) is generated by renewable energy (PV or equivalent).	5		
ENERGY EFFICIENCY				
EE4	**EXTERNAL LIGHTING AND CONTROL**			
	Encourage use of energy efficiency lighting and sensors to optimize energy savings to external or common areas.		**2**	
	A) Landed			
	1. Provide High Efficiency External Lighting to at least 90% of the total external areas (including Driveways, Porches and Gardens) with lamp efficacy ≥80 Lumens per Watt. ***AND*** 2. Maintain an overall luminance level of not more than what is specified in MS1525.	1		
	Provide photo-sensors with motion detectors controlled lighting in conjunction with daylighting strategy for 90% of the total external areas (including Driveways, Porches and Gardens).	1		
	B) Low-rise *OR* High-rise			
	1. Provide High Efficiency External Lighting to at least 90% of the common areas (including Lift Lobbies, Staircases, Carparks and Gardens) with lamp efficacy ≥80 Lumens per Watt. ***AND*** 2. Maintain an overall luminance level of not more than what is specified in MS1525.	1		
	Provide photo-sensors with motion detectors controlled lighting in conjunction with daylighting strategy for 90% of the common areas (including Lift Lobbies, Staircases, Carparks and Gardens).	1		
EE5	**INTERNET CONNECTIVITY**			
	Encourage working from home via internet connection, thereby discourage avoidable commuting.		**1**	
	Provide infrastructure for internet connectivity to meet the current speed capacity provided by the service providers.	1		
MAINTENANCE AND BUILDING USER MANUAL (BUM)				
EE6	**SUSTAINABLE MAINTENANCE AND BUILDING USER MANUAL (BUM)**			
	Ensure that the Green Building Design features will continue to perform as intended. Document all features and strategies in Building User Manual (BUM) for users or building maintenance team information and in guiding them to sustain performance during occupancy.		**2**	
	A) Buildings Without Common Management			
	Provide full set (hard and soft copy) of all Architectural, Structural and M&E Drawings and Maintenance Plan to every building owner.	1		
	Provide a Building User Manual (BUM) which documents both the passive and active green design features to every building owner	1		
	B) Buildings With Common Management			
	1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage, ***AND*** 2. As least 50% of permanent building maintenance team to be on-board 3 months before practical completion and fully participate (to be specified in contract condition) in the Testing and Commissioning of all Green Building Design feature, ***AND*** 3. Provide full set (hard and soft copy) of all Architectural, Structural and M&E Drawings and Maintenance Plan to the Building maintenance team, ***AND*** 4. Provide evidence of documented plan for at least 3 year of facility maintenance and preventive maintenance budget.	1		
	Provide a Building User Manual (BUM) which documents both the passive and active green design feature to the building maintenance team and every unit owner if applicable.	1		
	ENERGY EFFICIENCY (EE) TOTAL		**23**	

2 INDOOR ENVIRONMENTAL QUALITY (EQ)

AIR QUALITY, LIGHTING, VISUAL AND ACOUSTIC COMFORT | EVALUATION

12 POINTS

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
AIR QUALITY				
EQ1	**MINIMUM INDOOR AIR QUALITY PERFORMANCE**			
	Establish minimum indoor air quality performance to enhance indoor air quality in building, thus contributing to the comfort and well-being of the occupants.		**3**	
	A) Landed			
	All habitable rooms to meet the minimum requirements of ventilation rate in the local building code.	1		
	≥75% of the total habitable rooms to be provided with cross and/or stack ventilation, ***OR***	1		
	All habitable rooms to be provided with cross and/or stack ventilation.	2		
	B) Low-rise *OR* High-rise			
	All habitable rooms to meet the minimum requirements of ventilation rate in the local building code.	1		
	≥75% of the total habitable rooms to be provided with cross and/or stack ventilation.	1		
	All public and circulation spaces to be naturally ventilated to meet the minimum requirements of ventilation rate in the local building code.	1		
EQ2	**VOLATILE ORGANIC COMPOUNDS MINIMISATION**			
	Reduce the detrimental impact on occupant's health from finishes that emit internal air pollutants.		**2**	
	1 point is awarded for any 2 of the following items, up to a maximum of 2 points: 1. Low VOC paint and coating to walls (at least 90% of walls) ***OR*** no paint or coating used. 2. Low VOC paint and coating to ceilings (at least 90% of ceilings) ***OR*** no paint or coating used. 3. Low VOC carpet or interior flooring (at least 90% of flooring) ***OR*** no carpet or interior flooring used. 4. Low VOC adhesive and sealant (at least 90% of overall usage) ***OR*** no adhesive or sealant used.	2		
EQ3	**FORMALDEHYDE MINIMISATION**			
	Reduce the exposure of occupants to formaldehyde and promote good indoor air quality in the living spaces.		**1**	
	Use products with no added formaldehyde ***OR*** use products which comply with the formaldehyde emission ratings recognised by GBI, if glue is used in the manufacturing process.	1		
LIGHTING, VISUAL AND ACOUSTIC COMFORT				
EQ4	**DAYLIGHTING**			
	Encourage and recognise designs that provide good levels of daylighting for building occupants. Demonstrate that a nominated percentage of the habitable rooms as defined under Uniform Building By Laws (UBBL) has a Daylight Factor of minimum 0.5% as measured at floor level;		**3**	
	A) Landed			
	≥ 50% of habitable rooms, ***OR***	1		
	≥ 75% of habitable rooms, ***OR***	2		
	≥ 75% of all rooms.	3		
	B) Low-rise *OR* High-rise			
	≥ 50% of habitable rooms, ***OR***	1		
	≥ 75% of habitable rooms,	2		
	All public and circulation spaces being naturally lit.	1		
EQ5	**EXTERNAL VIEWS**			
	Reduce eyestrain for building occupants by allowing long distance views and provision of visual connection to the outdoor environment, which include greenery and/or water bodies.		**1**	
	Demonstrate that all the habitable rooms have a direct line of sight to the outdoor environment through vision glazing.	1		
EQ6	**SOUND INSULATION**			
	Encourage and recognize buildings' walls and floors are designed with adequate noise attenuation properties to maintain good acoustic insulation between dwellings. Ensure that the sound penetration between dwelling are controlled within the following criteria;		**1**	
	Sound Transmission Class (STC) value between dwelling units ≥ 45 .	1		

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
EVALUATION				
EQ7	**POST OCCUPANCY EVALUATION**			
	Provide for the assessment of quality and comfort of the building occupants.		**1**	
	Commit to implement a post-occupancy comfort survey of building occupants within 12 months after issuance of Certificate of Completion and Compliance (CCC). This survey should collect anonymous responses about air quality, thermal comfort, daylighting comfort, visual comfort and acoustic comfort in a building. This should include measurement of overall thermal, daylight and acoustic performance and identification of thermal-related, visual-related and acoustic-related problems.	1		
	INDOOR ENVIRONMENTAL QUALITY (EQ) TOTAL		**12**	

3 SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SITE PLANNING | CONSTRUCTION MANAGEMENT | TRANSPORTATION | DESIGN

33 POINTS

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
SITE PLANNING				
SM1	**SITE SELECTION AND PLANNING**			
	Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site. Proposed development should be appropriate for the site, complies with the Local Plan or Structure Plan for the area and does not overburden the available infrastructure.		**1**	
	Do not develop buildings, hardscape, roads or parking areas on sites or part of sites that meet any one of the following criteria: 1. Prime agriculture land as defined by the Town and Country Planning Act; 2. Land that is specifically identified as habitat for any species threatened or endangered lists; and 3. Within 30m of any wetlands as defined by the Structure Plan of the area, ***OR*** within setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, whichever is more stringent. 1. Previously undeveloped land that is within 30m of a water body, defined as seas, lakes, rivers, streams and tributaries which support or could support wildlife or recreational use; 2. Land which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public landowner; and 3. Land which is classified as Class IV (steeper than 30 degrees).	1		
	The proposed building must comply with the following requirements: 1. The Structure Plan for the area *AND/OR* The Local Plan where available, ***AND*** 2. The infrastructural requirements are available for the area.			
SM2	**RE-HABILITATION OF BROWNFIELD SITES OR RE-DEVELOPMENT OF EXISTING BUILDINGS**			
	Reduce pressure on undeveloped land by rehabilitating damaged sites where development is complicated by environmental contamination or redeveloping existing buildings		**1**	
	Rehabilitation of brownfield sites, ***OR*]	1		
	Re-use *OR* refurbishment of sites with existing buildings to improve the quality of the development.			
SM3	**COMMUNITY CONNECTIVITY**			
	Encourage the selection of sites close to basic community amenities and the planning of new residential areas to encourage the provision of local amenities. This is to reduce the current and future heavy use of private transport, which is the greatest contributor to Greenhouse Gases (GHG) emission.		**4**	
	Basic Amenities as listed below are to be provided or are available within 750m measured on plan from the furthest residential units: *(1 point for any 3 of the following Basic Amenities, up to a maximum of 2 points):* 1. Bank or ATM; 2. Playground or Public Park; 3. Religious Centre (Mosque, Surau, Temple, Church, Kuil); 4. Restaurant or Coffee Shop; 5. Supermarket or Grocery Store or Mini-market or Wet Market; 6. University or College or School or Crèche or Kindergarten.	2		
	Other Amenities as listed below are to be provided or are available within 750m measured on plan from the furthest residential units: *(1 point for any 3 of the following other Amenities, up to maximum of 2 points):* 1. Community Center or Assembly Hall; 2. Hair Saloon or Barber Shop; 3. Hardware Store; 4. Hospital or Medical Center or Clinic or Pharmacy; 5. Laundry; 6. Library or Book Store or Newsagent or Stationery Shop; 7. Police Station or Police Pondok; 8. Post Office	2		
CONSTRUCTION MANAGEMENT				
SM4	**EARTHWORKS – CONSTRUCTION ACTIVITY POLLUTION CONTROL**			
	Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.		**1**	
	Create and implement an Erosion and Sedimentation Control (ESC) Plan for all construction activities associated with the project. The ESC Plan shall conform to the erosion and sedimentation requirements of the approved Earthworks Plans OR Local erosion and sedimentation control standards and codes, whichever is the more stringent. The plan shall describe the measure implemented to accomplish the following objectives: 1. Prevent loss of soil during by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse; 2. Prevent sedimentation of storm sewer or receiving stream; and 3. Prevent polluting the air with dust and particulate matter	1		

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
SM5	**QLASSIC - QUALITY ASSESSMENT SYSTEM FOR BUILDING CONSTRUCTION WORK**			
	Encourage and recognize good quality construction – do it right first time – that does not require re-work that wastes materials and labour.		**1**	
	Subscribe to independent method to assess and evaluate quality of workmanship of building project based on CIDB's CIS 7: Quality Assessment System for Building Construction Work (QLASSIC) or equivalent systems recognized by GBI. Project should achieve a minimum score of 70%.	1		
SM6	**WORKERS' SITE AMENITIES**			
	Reduce pollution from construction activities by controlling pollution from waste and rubbish from workers. Create and implement a Site Amenities' Plan for all construction workers associated with the project.		**1**	
	The plan shall describe the measures implemented to accomplish the following objectives: 1. Proper accommodation for construction workers at the site or at temporary accommodation nearby; 2. Prevent pollution of storm sewer or receiving stream by having proper septic tank; 3. Prevent polluting the surrounding area from open burning and improper disposal of domestic waste; and 4. Provide, at reasonable distances, adequate health and hygiene facilities for workers on site.	1		
SM7	**IBS – INDUSTRIALISED BUILDING SYSTEM**			
	Encourage IBS and reduce on-site construction. Reduce material wastages from construction material and process.		**2**	
	CIDB IBS score ≥ 50%, ***OR***	1		
	CIDB IBS score ≥ 70%.	2		
TRANSPORTATION				
SM8	**PUBLIC TRANSPORTATION ACCESS**			
	Encourage the selection of sites close to public transport Stops or Interchanges or routes, and encourage use of public transport in the planning of the new housing areas. This is to reduce the current and future heavy dependence on private transport, which is the greatest contributor to GHG emission. Points are awarded according to the proximity from the furthest residential units, and quality of the pedestrian access, to the Public Transport Stops or Interchanges			
	Provision of Covered Waiting Area for ≥ 2% of total residents, up to maximum of 20 persons. (50% of points if private shuttle service to Public Transport Stops or Interchanges are provided)			
	Public Transport Stop located within 500m with one transport Route only; ***OR***	2	**6**	
	Public Transport Interchange with same Mode of Transport (eg Bus) located within 750m with more than one transport Route; ***OR***	4		
	Public Transport Interchange with more than one Mode of Transport (eg Bus, Monorail, Train, Ferry, etc.) located within 1km.	6		
	Quality of Pedestrian Dedicated Access			
	Dedicated walkway – Public *OR* Private walkway with provision for the physically handicapped, ***OR***	1	**2**	
	Dedicated covered walkway – Dedicated Public *OR* Private walkway with provision for the physically handicapped and with man-made shades or natural shade-providing trees at regular spacings covering at least 70% of the pedestrian access.	2		
SM9	**DEDICATED CYCLING NETWORK**			
	To reduce travel by car by promoting cycling as an alternative transportation mode.		**2**	
	A) Landed			
	Provision of bicycle lanes with proper signage for safety that is accessible to at least 90% of the residential units and common areas, where applicable.	1		
	Dedicated cycling network with man-made shades or natural shade-providing trees at regular spacings covering at least 70% of the cycling network.	1		
	B) Low-rise *OR* High-rise			
	Provision of bicycle lanes with proper signage for safety and provision of secured bicycle parking for ≥ 2% of total residents, up to maximum of 20 parking spaces.	1		
	Dedicated cycling network with man-made shades or natural shade-providing trees at regular spacings covering at least 70% of the cycling network	1		
DESIGN				
SM10	**STORM WATER DESIGN – QUANTITY AND QUALITY CONTROL**			
	Limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration and managing storm water runoff. Reduce or eliminate water pollution by reducing impervious cover, increasing onsite infiltration, eliminating sources of contaminants and removing pollutants from storm water runoff		**3**	
	Control post-development peak flow of any ARI at the project outlet to less than or equal to the pre-development peak flow of the corresponding ARI ($Q_{post} \leq Qpre$) in compliance with Manual Saliran Mesra Alam (MSMA) OR local equivalent minimum requirements, whichever is more stringent, ***OR***	1		
	Reduce the above-mentioned post-development peak flow of any ARI at the project outlet by another 30%.	2		
	Provide permanent pollutant control facilities with minimum overall percentage removal efficiency as defined by MSMA *OR* to attain a Class II(b) water quality standard as defined by the Interim National Water Quality Standards for Malaysia during and after construction, whichever is more stringent.	1		

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
SM11	**HEAT ISLAND EFFECT – GREENSCAPE AND WATER BODIES**			
	To reduce Heat Island Effect and to minimize negative impact on microclimate by conserve existing natural area or create larger soft landscape area.		**5**	
	A) Landed			
	1. Provide greenscape with native and adaptive plants (if applicable) and/or water body to ≥ 25% of land area, ***OR***	1		
	2. Provide greenscape with native and adaptive plants (if applicable) and/or water body to ≥ 35% of land area, ***OR***	2		
	3. Provide greenscape with native and adaptive plants (if applicable) and/or water body to ≥ 45% of land area, ***OR***	3		
	4. Provide greenscape with native and adaptive plants (if applicable) and/or water body to ≥ 55% of land area, ***OR***	4		
	5. Provide greenscape with native and adaptive plants (if applicable) and/or water body to ≥ 65% of land area. ***OR***	5		
	B) Low-rise *OR* High-rise			
	1. Provide greenscape with native & adaptive plants and/or water body to ≥ 15% of land area, ***OR***	1		
	2. Provide greenscape with native & adaptive plants and/or water body to ≥ 25% of land area, ***OR***	2		
	3. Provide greenscape with native & adaptive plants and/or water body to ≥ 35% of land area, ***OR***	3		
	4. Provide greenscape with native & adaptive plants and/or water body to ≥ 45% of land area, ***OR***	4		
	5. Provide greenscape with native & adaptive plants and/or water body to ≥ 55% of land area.	5		
SM12	**HEAT ISLAND EFFECT – HARDSCAPE**			
	To reduce Heat Island Effect and to minimize negative impact on microclimate through selection of hardscape material. Provide a combination of the following strategies over the percentage of the site's hardscape areas, including sidewalks, courtyards, plazas and parking lots: a) Shade, within 5 years of occupancy; b) Paving materials with a Solar Reflectance Index (SRI) of at least 29; c) Open grid pavement system.		**2**	
	1. ≥50 of the site's hardscape areas, ***OR***	1		
	2. ≥75 of the site's hardscape areas.	2		
SM13	**HEAT ISLAND EFFECT – ROOF**			
	To reduce Heat Island Effect and to minimize negative impact on microclimate through selection of roof material.		**1**	
	1. Use roof material with SRI ≥ 78 for low pitch roof (gradient < 2:12), or SRI ≥ 29 for steep pitch roof (gradient > 2:12) for ≥75% of the roof surfaces; ***OR***	1		
	2. Install a vegetated roof to at least 50% of the roof area; ***OR***			
	3. Install high albedo and vegetated roof surface that, in combination, meet the following criteria *(Area of SRI Roof / 0.75) + (Area of vegetated roof / 0.5) ≥ Total Roof Area.*			
SM14	**COMPOSTING**			
	To reduce the use of synthetic fertilizers and to reduce amount of landscape and/or organic wastes.		**1**	
	1. Recycle landscape and/or organic wastes to meet at least 50% of landscape fertilizer needs, ***OR*** 2. Provide a programme for the recycling of the landscape and/or organic wastes.	1		
	SUSTAINABLE SITE PLANNING AND MANAGEMENT (SM) TOTAL		**33**	

4 MATERIALS & RESOURCES (MR)

REUSED AND RECYCLED MATERIALS | SUSTAINABLE RESOURCES | WASTE MANAGEMENT

12 POINTS

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
REUSED AND RECYCLED MATERIALS				
MR1	**MATERIALS REUSE AND SELECTION**			
	Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources. Integrate building design and its buildability with careful selection of building materials in relation with embodied energy and durability of the materials to lower carbon foot print and improve materials' life cycle.		2	
	Where reused products or materials constitutes ≥ 2% of the project's total material cost value, ***OR***	1		
	Where reused products or materials constitutes ≥ 5% of the project's total material cost value.	2		
MR2	**RECYCLED CONTENT MATERIALS**			
	Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials. (Recycle content shall be defined in accordance with the International Organization of Standards Document).		2	
	Where use of products or materials with recycled content is such that the sum of post-consumer recycled plus one-half of the pre-consumer content constitutes ≥ 10% (based on cost) of the total value of the materials in the project, ***OR***	1		
	Where use of products or materials with recycled content is such that the sum of post-consumer recycled plus one-half of the pre-consumer content constitutes ≥ 30% (based on cost) of the total value of the materials in the project.	2		
SUSTAINABLE RESOURCES				
MR3	**REGIONAL MATERIALS**			
	Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation. Mechanical, electrical and plumbing components shall not be included. Only include materials permanently installed in the project.		2	
	Use building products or materials that have been extracted, harvested or recovered, as well as manufactured, within Malaysia for ≥ 50% (based on cost) of the total material value, ***OR***	1		
	Use building products or materials that have been extracted, harvested or recovered, as well as manufactured, within Malaysia for ≥ 75% (based on cost) of the total material value.	2		
MR4	**SUSTAINABLE TIMBER**			
	Encourage environmentally responsible forest management: The wood-based materials and products components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wooden doors and finishes. To include wood materials permanently installed and also temporarily purchased for the project. Compliance with certifications issued by: 1. Forest Stewardship Council (FSC), *OR* 2. Malaysian Timber Certification Scheme (MTCS).		2	
	Where ≥ 50% of wood-based materials and products used are certified, ***OR***	1		
	Where ≥ 75% of wood-based materials and products used are certified.	2		
WASTE MANAGEMENT				
MR5	**STORAGE & COLLECTION OF RECYCLABLES**			
	Facilitate the reduction of waste, generated during construction and during building occupancy, that is hauled and disposed off in landfills		2	
	During Construction, provide dedicated area(s) and storage for collection of non-hazardous materials for recycling.	1		
	During Building Occupancy, provide permanent recycling bins and implement a Recyclable Segregation Plan	1		
MR6	**CONSTRUCTION WASTE MANAGEMENT**			
	Direct construction debris from disposal in landfill and incineration. Redirect recyclable and recoverable resource back to manufacturing process. Redirect reuseable material to appropriate site. Develop and implement a construction waste management plan that, as a minimum identifies the materials to be diverted from disposal regardless of whether the materials will be sorted on site or co-mingled. Quantify by measuring total truck loads of waste sent for disposal:-		2	
	Recycle and/or salvage ≥ 50% volume/tonnage of non-hazardous construction debris, ***OR***	1		
	Recycle and/or salvage ≥ 75% volume/tonnage of non-hazardous construction debris.	2		
		MATERIALS & RESOURCES (MR) TOTAL	**12**	

5 WATER EFFICIENCY (WE)

WATER HARVESTING AND RECYCLING | INCREASED EFFICIENCY

12 POINTS

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
WATER HARVESTING & RECYCLING				
WE1	**RAINWATER HARVESTING**			
	Encourage rainwater harvesting that will lead to reduction in potable water consumption. (For Low-rise and High-rise, potable water consumption shall apply to the water consumption of Common Areas only.)		**4**	
	Rainwater harvesting that leads to ≥ 10% reduction in potable water consumption, ***OR***	1		
	Rainwater harvesting that leads to ≥ 30% reduction in potable water consumption, ***OR***	2		
	Rainwater harvesting that leads to ≥ 40% reduction in potable water consumption, ***OR***	3		
	Rainwater harvesting that leads to ≥ 50% reduction in potable water consumption.	4		
WE2	**WASTE WATER RECYCLING**			
	Encourage waste water recycling that will lead to reduction in potable water consumption. (For Low-rise and High-rise, potable water consumption shall apply to the water consumption of Common Areas only.)		**2**	
	Treat and recycle ≥ 10% wastewater (grey and/or black) leading to reduction in potable water consumption, ***OR***	1		
	Treat and recycle ≥ 30% wastewater (grey and/or black) leading to reduction in potable water consumption	2		
INCREASED EFFICIENCY				
WE3	**WATER EFFICIENT IRRIGATION AND LANDSCAPING**			
	Encourage the design of system that does not require the use of potable water supply from the local water authority:		**2**	
	Reduce potable water consumption for landscape irrigation by ≥ 50% (e.g. through use of native or adaptive plants to reduce requirement, ***OR***	1		
	Do not use potable water at all for landscape irrigation	2		
WE4	**WATER EFFICIENT FITTINGS**			
	Encourage reduction in potable water consumption through use of efficient devices:		**4**	
	Reduce annual potable water consumption by ≥ 10%, ***OR***	1		
	Reduce annual potable water consumption by ≥ 30%, ***OR***	2		
	Reduce annual potable water consumption by ≥ 40%, ***OR***	3		
	Reduce annual potable water consumption by ≥ 50%.	4		
	WATER EFFICIENCY (WE) TOTAL		**12**	

6 INNOVATION (IN)

INNOVATION IN DESIGN & ENVIRONMENTAL DESIGN INITIATIVES | GREEN BUILDING INDEX FACILITATOR GBIF)

8 POINTS

ITEM	ASSESSMENT CRITERIA	DETAIL POINTS	MAX POINTS	SCORES
IN1	**INNOVATION IN DESIGN & ENVIRONMENTAL DESIGN INITIATIVES**			
	Provide the design team and the project the opportunity to be awarded points for exceptional performance above the requirements set by GBI rating system		**7**	
	1 point for each approved innovation and environmental design initiative up to a maximum of 7 points, such as, but not limited to: • Bioswale (25% of the building perimeter) • Central Vacuum System (50% of NLA) • Central Pneumatic Waste Collection System • Charging Station for Hybrid or Electric Car (5% of the total parking spaces provided, up to a maximum of 20 nos) • CUI ≤ 0.5 m^3/m^2 • External Shading Devices (50% of glazed façade) • Herb and/or Food Garden (Landed-25% of landscape area. Low-rise and High-rise-10% of landscape area or 20m^2 whichever is the larger) • LED Façade Lighting (only where mandated by Local Authority) • Light Pipes (1% of NLA) • Substantial usage of Green Label Product • Sustainable Construction Practice (with substantial environmental impact) • Performance 'over and above' any of the Tool's stated criterias (awarded on a case-by-case basis) • Preserve existing greenery (awarded on a case-by-case basis) • Promote Biodiversity (with substantial environmental impact) • Provide only 5-Star Energy Efficient Appliances approved by KeTTHA, e.g. Air-Conditioning, Refrigerator, Fan, Television etc. • Real time energy and water usage display and educational facilities • Recycling Fire System Water (Sprinkler and Wet Riser systems, where applicable) during regular testing • Regenerative Lift (50% of installed lifts) • Self-cleaning Façade (90% of facade area) • Solar Hot Water System (composition to meet Shower requirement for all Bathrooms) • Turbine Ventilator (all roofs) • Vertical Green Wall (10% of the facade area) • Wind Chimney	7		
IN2	**GREEN BUILDING INDEX FACILITATOR (GBIF)**			
	Green Building Index Facilitator to support and encourage the design integration required for Green Building Index rated buildings and to streamline the application and certification process.		**1**	
	Appointment of a Green Building Index Facilitator (GBIF).	1		
		INNOVATION (IN) TOTAL	**8**	