

## **GBI ASSESSMENT CRITERIA**

RESIDENTIAL NEW CONSTRUCTION (RNC)

FIRST EDITION | JUNE 2009 | VERSION 1.0

## **CONTENTS**

PAGE	2	ACKNOWLEDGEMENT & COPYRIGHT
		INTRODUCTION
PAGE	3	What is the Green Building Index (GBI)?
PAGE	3	Who can use the Green Building Index?
PAGE	4	PROJECT INFORMATION
		ASSESSMENT CRITERIA
PAGE	5	Overall Points Score
PAGE	6	Summary Criteria Score
		INDIVIDUAL ITEM SCORE
PAGE	7	PART 1: Energy Efficiency (EE)
PAGE	8	PART 2: Indoor Environmental Quality (EQ)
PAGE	9	<b>PART 3:</b> Sustainable Site Planning & Management (SM)
PAGE	11	PART 4: Materials & Resources (MR)
PAGE	12	PART 5: Water Efficiency (WE)
PAGE	13	PART 6: Innovation (IN)

## **ACKNOWLEDGEMENT & COPYRIGHT**

The Green Building Index (GBI) is developed by PAM and ACEM for the purposes as mentioned herein and may be subject to updating and/or modification in future.

While every care has been taken by PAM and ACEM in the development of the GBI to establish and acknowledge copyright of the information and materials used, and contact the copyright owners known to PAM/ACEM, PAM and ACEM tender their apologies for any accidental omissions.

Green Building Index and GBI is a copyright of Greenbuildingindex Sdn Bhd (in short "GSB") in which GSB reserves all rights. GSB is the custodian of all rights of PAM and ACEM in the GBI. No part of the GBI may be used, modified, reproduced, stored in a retrieval system or transmitted in any form, or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of GSB.

#### **DISCLAIMERS**

PAM and/or ACEM and/or GSB shall not be held liable for any improper or incorrect use of the GBI (inclusive of the materials and/or information contained therein) and assume no responsibility for any user's use of it. In no event shall PAM and/or ACEM and/or GSB be liable for any damages whatsoever, whether direct, incidental, special, exemplary or consequential (including, but not limited to business interruption or loss of use, data or profits) regardless of cause, and on any basis of liability, whether in contract, strict liability or tort (including negligence, misrepresentation or otherwise) arising in any way out of the use of the GBI or the information and materials contained therein.

The information and materials in the GBI are provided "as is" and without warranties of any kind expressed or implied. PAM, ACEM and GSB do not warrant or make representations as to the accuracy and completeness of any information and/or materials contained therein. While every effort has been made to check the accuracy and completeness of the information and materials given, the users should always make their own relevant checks. Accordingly, PAM, ACEM and GSB do not accept responsibility and liability for misstatements made in it or misunderstanding from it.

The GBI is no substitute for professional advice. Users are advised to consult with appropriate and accredited professional advisors for advice concerning specific matters pertaining to the GBI before adopting or using it. PAM, ACEM and GSB disclaim any responsibility for positions taken by users in their individual cases or for any misunderstandings and losses, direct or indirectly, on the part of the users.

PAM, ACEM and GSB do not endorse or otherwise acknowledge the GBI rating achieved by the use of the GBI. PAM, ACEM and GSB offer a formal certification process for ratings; which service provides for independent third party review of points claimed to ensure that all credits can be demonstrated to be achieved by the provision of the necessary documentary evidence. Use of the GBI without formal certification by GSB does not entitle the user or any other party to promote the achieved GBI rating.

#### INDEMNIFICATION

To the extent permitted by applicable law, by using GSB's GBI, the user agrees to defend, indemnify, and hold harmless, PAM and/or ACEM and/or GSB, their officers, employees, members, representatives and agents from and against all claims and expenses of whatsoever kind and amount, arising out of the user's use of the GBI or materials and information contained therein and not to pursue any cause of action whatsoever against PAM and/or ACEM and/or GSB under any conceivable circumstances.

## INTRODUCTION

### WHAT IS THE GREEN BUILDING INDEX (GBI)?

The Green Building Index is an environmental rating system for buildings developed by PAM (Pertubuhan Arkitek Malaysia / Malaysian Institute of Architects) and ACEM (the Association of Consulting Engineers Malaysia). 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 developed specifically for the Malaysian tropical weather, environmental and developmental context, cultural and social needs.

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

- Define green buildings 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 it's environmental impact; and
- Ensure new buildings remain relevant in the future and existing buildings are refurbished and upgraded 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 & 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 annually; please forward any feedback to info@greenbuildingindex.org

## **PROJECT INFORMATION**

PROJECT NAME	
PROJECT ADDRESS	
POSTCODE	
STATE	
APPLICANT	
CONTACT PERSON	
ARCHITECT	
CIVIL ENGINEER	
STRUCTURAL ENGINEER	
MECHANICAL ENGINEER	
ELECTRICAL ENGINEER	
QUANTITY SURVEYOR	
LAND SURVEYOR	
LANDSCAPE CONSULTANT	
OTHER SPECIALIST CONSULTANT(S)	
MAIN CONTRACTOR	
LOCAL AUTHORITY	
TOTAL GROSS FLOOR AREA	
LAND AREA FOR LANDED PROPERTY	
BUILDING DESCRIPTION	

FIRST EDITION | JUNE 2009 | VERSION 1.0 GREENBUILDINGINDEX SDN BHD (845666-V)

# ASSESSMENT CRITERIA OVERALL POINTS SCORE

PART	ITEM	MAXIMUM POINTS	SCORE
1	Energy Efficiency	23	
2	Indoor Environmental Quality	11	
3	Sustainable Site Planning & Management	39	
4	Material & Resources	9	
5	Water Efficiency	12	
6	Innovation	6	
	TOTAL SCORE	100	

## **GREEN BUILDING INDEX CLASSIFICATION**

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

## **ASSESSMENT CRITERIA SCORE SUMMARY**

PART	CRITERIA	ITEM	POINTS	TOTAL
	EE	ENERGY EFFICIENCY		
	EE1	Minimum EE Performance	3	
1	EE2	Renewable Energy	5	
	EE3	Advanced EE Performance based on OTTV & RTTV	10	23
	EE4	Home Office & Connectivity	2	
	EE5	Sustainable Maintenance	3	
	EQ	INDOOR ENVIRONMENTAL QUALITY		
	Air Quality, Lig	ghting, Visual & Acoustic Comfort		
	EQ1	Minimum IAQ Performance	2	
	EQ2	Daylighting	2	
2	EQ3	Sound Insulation	2	
	EQ4	Good Quality Construction	1	11
	EQ5	Volatile Organic Compounds	1	
	EQ6	Formaldehyde Minimisation	1	
	Verification			
	EQ7	Post Occupancy Evaluation: Verification	2	
	SM	SUSTAINABLE SITE PLANNING & MANAGEMENT		
	Site Planning 8	& Transport		
	SM1	Site Selection	1	
	SM2	Public Transportation Access	12	
	SM3	Community Services & Connectivity	8	
	SM4	Open Spaces, Landscaping & Heat Island Effect	4	
3	Site & Constru	iction Management	·	39
	SM5	Construction System & Site Management	3	
	SM6	Stormwater Management	3	
	SM7	Re-development of Existing Sites & Brownfield Re-development	4	
	SM8	Avoiding Enviromentally Sensitive Areas	2	
	SM9	Building User Manual	2	
	MR	MATERIALS & RESOURCES		
	Reused & Rec	ycled Materials		
	MR1	Storage & Collection of recyclables	2	
	MR2	Materials Reuse and Selection	2	
4	MR3	Construction Waste Management	2	9
	Sustainable Re	esources		9
	MR4	Recycled Content Materials	1	
	MR5	Regional Materials	1	
	MR6	Sustainable Timber	1	
	WE	WATER EFFICIENCY		
5	Water Harvest	ting & Recycling		
	WE1	Rainwater Harvesting	4	
	WE2	Water Recycling	2	12
	Increased Effic	iency		12
	WE3	Water Efficient Landscaping	2	
	WE4	Water Efficient Fittings	4	
	IN	INNOVATION		
6	IN1	Innovation in Design & Environmental Design Initiatives	5	6
	IN2	Green Building Index Facilitator (GBIF)	1	
			TOTAL POINTS	100



ENERGY EFFICIENCY (EE)
MINIMUM EE PERFORMANCE | RENEWABLE ENERGY | ADVANCED EE PERFORMANCE | HOME OFFICE & CONECTIVITY

EE3 MINIMUM EE PERFORMANCE  Eablish minimum Energy Efficiency (EE) performance to reduce energy consumption in buildings, thus reducing CO, emission to the strong-thee.  Apoly OTTV and RTIV formulae of MS 1525 for read-dental buildings.  OTTV a 50 Minn, ETTV 2.5 Winn's RTIV Set Winn's Roof U 5.0 A Winn's Killyshoveghin of MS 1525 for read-dental buildings.  EE2 RENEWABLE ENERGY  EE2 RENEWABLE ENERGY  Where 40% of building areangy consumption or 2 Winp (whichever is the lower) is generated by renewable energy, OR 2 Winner 40% of buildings energy consumption or 2 Winp (whichever is the lower).  Where 40% of building areangy consumption or 5 Winp (whichever is the lower). OR 3 Minner 60% of buildings energy consumption or 5 Winp (whichever is the lower). OR 4 Minner 60% of buildings energy consumption or 5 Winp (whichever is the lower). OR 5 Minner 60% of buildings energy consumption or 5 Winp (whichever is the lower). OR 6 Minner 60% of buildings energy consumption or 5 Winp (whichever is the lower). OR 7 Minner 60% of buildings energy consumption or 5 Winp (whichever is the light). OR 2 Minner 60% of buildings energy consumption or 5 Winp (whichever is the light). OR 2 Minner 60% of buildings energy consumption or 5 Winp (whichever is the light). OR 2 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60% of buildings energy consumption or 20 Winp (shichever is the light). OR 3 Minner 60%	ITEM	AREA OF ASSESSMENT	DETAIL POINTS	MAX POINTS	SCORE
to the strong-lever.  Apply OTTV and RTTV formulas of MS 1525 for residential buildings.  OTTV -50 Wm/s RTTV -25 W	EE1	MINIMUM EE PERFORMANCE			
CTTV 6.5 (When 17.5 of Dullding energy consumption or 2 kWp (whichever is the lover), 08  Where 60% of building energy consumption or 2 kWp (whichever is the lover), 08  Where 60% of building energy consumption or 2 kWp (whichever is the lover), 08  Where 60% of building energy consumption or 2 kWp (whichever is the lover), 08  Where 60% of building energy consumption or 3 kWp (whichever is the lover), 08  Where 60% of building energy consumption or 3 kWp (whichever is the lover), 08  Where 60% of building energy consumption or 3 kWp (whichever is the lover), 08  Where 1.0% of building energy consumption or 3 kWp (whichever is the lover), 08  Where 1.0% of building energy consumption or 3 kWp (whichever is the ligher), 08  Where 1.0% of building energy consumption or 3 kWp (whichever is the ligher), 08  Where 1.0% of building energy consumption or 30 kWp (whichever is the ligher), 08  Where 1.0% of building energy consumption or 30 kWp (whichever is the ligher), 08  Where 1.0% of building energy consumption or 40 kWp (whichever is the ligher), 08  Where 2.0% of building energy consumption or 40 kWp (whichever is the ligher), 08  Where 2.0% of building energy consumption or 40 kWp (whichever is the ligher)  Where 2.0% of building energy consumption or 40 kWp (whichever is the ligher)  Where 2.0% of building energy consumption or 40 kWp (whichever is the ligher)  Where 2.0% of building energy consumption or 40 kWp (whichever is the ligher)  EE3  ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EP reformance to reduce dependence on Energy to keep indoor environment at satisfactory conflort level.  Computed OTTY and RTTV to a two lover dependence on Energy to maintain indoor thermal conflort.  OTTV 4.0 kWrer  Lightweepit Roof U-value 2.0 SWrmiN  Heavyweight Roof U-value 2.0 SWrmiN  Heavywei					
Read U. Co. 4 Wilner. Replace September 1 Roof U. Sok. Wilner. Meanways grid of Roof U. Sok. Wilner. Meanways grid of Read U. Sok. Wilner. Meanways grid of Read U. Sok. Wilner. Meanways grid of Read U. Sok. Wilner. Read		Apply OTTV and RTTV formulas of MS 1525 for residential buildings.	3	3	
EE2 RENEWABLE ENERGY  Encourage use of remerable energy.  A) Low-fite (2-Storreys and below):  Where 40% of building energy consumption or 2 Why (whichever is the lower) is generated by renewable energy, OR 2 Where 60% of building energy consumption or 2 Why (whichever is the lower), OR 3 3 Where 60% of building energy consumption or 3 Why (whichever is the lower), OR 4 4 100% of building energy consumption or 3 Why (whichever is the lower), OR 5 5 5 8 Where 60% of building energy consumption or 5 Why (whichever is the lower), OR 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Roof U ≤ 0.4 W/m²K (Lightweight)			
A) Low-rise (3-Storeys and below):  Where 1/Wp is generated by renewable energy, 08  Where 40% of building energy consumption or 2 kWp (whichever is the lower), 08  Where 60% of building energy consumption or 4 kWp (whichever is the lower), 08  100% of building energy consumption or 4 kWp (whichever is the lower), 08  B) Hi-frise (Above 3-Storeys):  Where 0.5% of building energy consumption or 5 kWp (whichever is the lower)  B) Hi-frise (Above 3-Storeys):  Where 0.5% of building energy consumption or 5 kWp (whichever is the higher), 08  Where 1.5% of building energy consumption or 10 kWp (whichever is the higher), 08  Where 2.5% of building energy consumption or 20 kWp (whichever is the higher), 08  Where 2.5% of building energy consumption or 20 kWp (whichever is the higher), 08  Where 2.5% of building energy consumption or 20 kWp (whichever is the higher), 08  Where 2.5% of building energy consumption or 20 kWp (whichever is the higher), 08  EE3  ADVANCED EF PERFORMANCE BASED ON OTTV & RTTV  Establish EF Performance to reduce dependence on Energy to keep indoor environment at satisfactory confort level.  Computed OTTV and RTTV to show lower dependence on Energy to keep indoor environment at satisfactory confort level.  Computed OTTV and RTTV to show lower dependence on Energy to keep indoor environment at satisfactory confort level.  Computed OTTV and Whire  Liphweight Roof U-value s 0.35 Wm/K  Heavyweight Roof U-value s 0.15 Wm/K  Heavyweight Roof U	EE2				
Where 1 kWp is generated by renewable energy, OR  Where 40% of building energy consumption or 2 kWp (whichever is the lower) is generated by renewable energy, OR  Where 80% of building energy consumption or 3 kWp (whichever is the lower), OR  Where 80% of building energy consumption or 5 kWp (whichever is the lower), OR  100% of building energy consumption or 5 kWp (whichever is the lower)  B) Hi-rise (Above 3-Storeys):  Where 1.0% of building energy consumption or 5 kWp (whichever is the ligher), OR  Where 1.0% of building energy consumption or 10 kWp (whichever is the higher), OR  Where 1.0% of building energy consumption or 20 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 20 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Where 2.0% of building energy consumption or 40 kWp (whichever is the higher), OR  Establish EE Performance to reduce dependence on Energy to keep indoor environment at stisfactory control level.  Computed OTT v 4 kWp.  Liphweight Roof U-value 2.0.3 kWm²k  Heavyweight Roof U-value 2.0.3 kWm²k  Heavyweight Roof U-value 2.0.3 kWm²k  Heavyweight Roof U-value 2.0.3 kWm²k  Heavyw		Encourage use of renewable energy.			
Where 40% of building energy consumption or 2 kWp (whichever is the lower) is generated by renewable energy, 08 2 Where 60% of building energy consumption or 3 kWp (whichever is the lower), 08 4 100% of building energy consumption or 3 kWp (whichever is the lower), 08 4 100% of building energy consumption or 5 kWp (whichever is the lower) 5  B) H-frise (Above 3-Storeys):  Where 0.5% of building energy consumption or 5 kWp (whichever is the higher) is generated by renewable energy, 08 1 Where 1.0% of building energy consumption or 20 kWp (whichever is the higher), 08 2 Where 1.0% of building energy consumption or 20 kWp (whichever is the higher), 08 3 Where 2.0% of building energy consumption or 30 kWp (whichever is the higher), 08 4 Where 2.0% of building energy consumption or 30 kWp (whichever is the higher), 08 4 Where 2.5% of building energy consumption or 30 kWp (whichever is the higher) (8 5  EE3 ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to maintain indoor thermal comfort.  OTTV < 40 W/m² Lightweight Road Livakius < 0.33 W/m²K Lightweight Road Livakius < 0.30 W/m²K Lightweight Road Livakius < 0.3 W/m²K Lightweight Road Livak		A) Low-rise (3-Storeys and below):			
Where 60% of building energy consumption or 3 kWp (whichever is the lower), 08  Where 80% of building energy consumption or 4 kWp (whichever is the lower)  B) Hi-rise (Above 3-Storeys):  Where 0.5% of building energy consumption or 5 kWp (whichever is the lower)  B) Hi-rise (Above 3-Storeys):  Where 0.5% of building energy consumption or 5 kWp (whichever is the ligher), 08  Where 0.5% of building energy consumption or 10 kWp (whichever is the higher), 08  Where 0.5% of building energy consumption or 10 kWp (whichever is the higher), 08  Where 2.5% of building energy consumption or 20 kWp (whichever is the higher), 08  Where 2.5% of building energy consumption or 30 kWp (whichever is the higher), 08  Where 2.5% of building energy consumption or 40 kWp (whichever is the higher), 08  EE3  ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level.  Computed OTTV and RTTV to show lower dependence on Energy to keep indoor environment at satisfactory comfort level.  Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV < 40 kWm²  Uphreveight Roof U-value ≤ 0.35 W/m²K  Heavyweight Roof U-value ≤ 0.35 W/m²K  He		Where 1 kWp is generated by renewable energy, OR	1		
Where 80% of building energy consumption or 4 kWp (whichever is the lower), 08  100% of building energy consumption or 5 kWp (whichever is the lower)  8) Hi-rise (Above 3-Storeys):  Where 0.5% of building energy consumption or 5 kWp (whichever is the higher) is generated by renewable energy, 08  1 Where 1.5% of building energy consumption or 10 kWp (whichever is the higher), 08  2 Where 1.5% of building energy consumption or 20 kWp (whichever is the higher), 08  3 Where 2.5% of building energy consumption or 30 kWp (whichever is the higher), 08  4 Where 2.5% of building energy consumption or 30 kWp (whichever is the higher), 08  4 Where 2.5% of building energy consumption or 40 kWp (whichever is the higher), 08  EE3 ADVANCED EF PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level.  Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV ≤ 46 W/m²  Lightweelight Roof U-value ≤ 0.35 W/m²K  OTTV ≤ 42 W/m²  Lightweelight Roof U-value ≤ 0.35 W/m²K  OTTV ≤ 40 W/m²  Lightweelight Roof U-value ≤ 0.35 W/m²K  0TTV ≤ 40 W/m²  Lightweelight Roof U-value ≤ 0.35 W/m²K  0TTV ≤ 40 W/m²  Lightweelight Roof U-value ≤ 0.15 W/m²K  0TTV ≤ 40 W/m²  Lightweelight Roof U-value ≤ 0.15 W/m²K  0TTV ≤ 40 W/m²  Lightweelight Roof U-value ≤ 0.15 W/m²K  0TTV ≤ 40 W/m²  Lightweelight Roof U-value ≤ 0.15 W/m²K  0TTV ≤ 40 W/m²  Lightweelight Roof U-value ≤ 0.15 W/m²K  2 Performance of U-value ≤ 0.15 W/m²K  EFS SUSTAINABLE MAINTENACE  Ensure that the buildings energy related systems will continue to perform as intended beyond the 12 months Defects  8 Liability Perod. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  8 Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget. OR  Buildings Without Common Management:  1. Provide a evidence		Where 40% of building energy consumption or 2 kWp (whichever is the lower) is generated by renewable energy, <b>OR</b>	2		
100% of building energy consumption or 5 kWp (whichever is the lower)  8) HI-rise (Above 3-Storeys):  Where 0.5% of building energy consumption or 5 kWp (whichever is the higher), or 10 kWp (which		Where 60% of building energy consumption or 3 kWp (whichever is the lower), OR	3		
B) Hi-rise (Above 3-Strorys):  Where 0.5% of building energy consumption or 5 kWp (whichever is the higher) is generated by renewable energy, 08 1  Where 1.5% of building energy consumption or 10 kWp (whichever is the higher), 08 2  Where 2.5% of building energy consumption or 30 kWp (whichever is the higher), 08 3  Where 2.5% of building energy consumption or 30 kWp (whichever is the higher), 08 4  Where 2.5% of building energy consumption or 40 kWp (whichever is the higher), 08 5  EE3 ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level.  Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV < 40 W/m²  Lightweight Roof U-value < 0.35 W/m²K  Heavyweight Roof U-value < 0.35 W/m²K  Heavyweight Roof U-value < 0.30 W/m²K  OTTV < 40 W/m²  Lightweight Roof U-value < 0.30 W/m²K  Heavyweight Roof U-value < 0.30 W/m²K  OTTV < 40 W/m²  Lightweight Roof U-value < 0.25 W/m²K  OTTV < 30 W/m²  Lightweight Roof U-value < 0.25 W/m²K  Heavyweight Roof U-value < 0.25 W/m²K  Heavyweight Roof U-value < 0.15 W/m²K  EE4 HOME OFFICE & CONNECTIVITY  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, 08 High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects 8 Libelity Prefore Deparkor.  Buildings With Common Management:  1. Provide a devigence building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage;  2. Provide a devigence of documented plan for at least 3-year facility maintenance and preventive maintenance budget. OR  Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance obudget.		Where 80% of building energy consumption or 4 kWp (whichever is the lower), OR	4		
Where 0.5% of building energy consumption or 5 kWp (whichever is the higher) is generated by renewable energy, 0R  Where 1.0% of building energy consumption or 10 kWp (whichever is the higher), 0R  Where 2.0% of building energy consumption or 30 kWp (whichever is the higher), 0R  Where 2.5% of building energy consumption or 30 kWp (whichever is the higher), 0R  Where 2.5% of building energy consumption or 40 kWp (whichever is the higher), 0R  4  Where 2.5% of building energy consumption or 40 kWp (whichever is the higher), 0R  EE3 ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level.  Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV < 46 W/m²  Lightweight Roof U-value < 0.35 W/m²K  Heavyweight Roof U-value < 0.30 W/m²K  Heavyweight Roof U-value < 0.30 W/m²K  Heavyweight Roof U-value < 0.30 W/m²K  Heavyweight Roof U-value < 0.25 W/m²K  OTTV < 40 W/m²  Lightweight Roof U-value < 0.25 W/m²K  Heavyweight Roof U-value < 0.25 W/m²K  EE4 HOME OFFICE & CONNECTIVITY  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, 0R  High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Lability Percod Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage;  2. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage;  2. Provide a de		100% of building energy consumption or 5 kWp (whichever is the lower)	5	5	
Where 1.0% of building energy consumption or 10 kWp (whichever is the higher), 0R   2		B) Hi-rise (Above 3-Storeys):	1		
Where 1.5% of building energy consumption or 20 kWp (whichever is the higher), 0R  Where 2.0% of building energy consumption or 30 kWp (whichever is the higher), 0R  Where 2.5% of building energy consumption or 40 kWp (whichever is the higher)  ESS  ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level.  Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV < 4.6 kW/m²  Lightweight Roof U-value ≤ 0.35 W/m²K  Heavyweight Roof U-value ≤ 0.30 W/m²K  Heavyweight Roof U-value ≤ 0.30 W/m²K  OTTV ≤ 44 W/m²  Lightweight Roof U-value ≤ 0.25 W/m²K  Heavyweight Roof U-value ≤ 0.25 W/m²K  OTTV < 4.04 W/m²  Lightweight Roof U-value ≤ 0.25 W/m²K  Heavyweight Roof U-value ≤ 0.2 W/m²K  OTTV ≤ 4.04 W/m²  Lightweight Roof U-value ≤ 0.25 W/m²K  Heavyweight Roof U-value ≤ 0.25 W/m²K  OTTV ≤ 4.04 W/m²  Lightweight Roof U-value ≤ 0.25 W/m²K  Heavyweight Roof U-value ≤ 0.25 W/m²K  OTTV ≤ 4.04 W/m²  Lightweight Roof U-value ≤ 0.15 W/m²K  Heavyweight Roof U-value ≤ 0.15 W/m²K  EE4 HOME OFFICE & CONNECTIVITY  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, 0R High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; 0R		Where 0.5% of building energy consumption or 5 kWp (whichever is the higher) is generated by renewable energy, <b>OR</b>	1		
Where 2.0% of building energy consumption or 30 kMp (whichever is the higher). 08  Where 2.5% of building energy consumption or 40 kWp (whichever is the higher)  EE3 ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level. Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV ≤ 40 Wm² Lightweight Roof U-value ≤ 0.35 Wm²K Heavyweight Roof U-value ≤ 0.35 Wm²K Heavyweight Roof U-value ≤ 0.30 Wm²K  OTTV ≤ 44 Wm² Lightweight Roof U-value ≤ 0.30 Wm²K Heavyweight Roof U-value ≤ 0.25 Wm²K Heavyweight Roof U-value ≤ 0.25 Wm²K Heavyweight Roof U-value ≤ 0.2 Wm²K  OTTV ≤ 40 Wm² Lightweight Roof U-value ≤ 0.2 Wm²K  OTTV ≤ 40 Wm² Lightweight Roof U-value ≤ 0.2 Wm²K  OTTV ≤ 40 Wm² Lightweight Roof U-value ≤ 0.2 Wm²K  OTTV ≤ 40 Wm² Lightweight Roof U-value ≤ 0.15 Wm²K Heavyweight Roof U-value ≤ 0.15 Wm²K  OTTV ≤ 38 Wm² Lightweight Roof U-value ≤ 0.15 Wm²K  EE4 HOME OFFICE & CONNECTIVITY  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, OR High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and invertory storage; 2. Provide evidence of documented plan for at least 3-year preventive maintenance budget; OR  Buildings Without Common Management: 1. Provide a devidence of documented plan for at least 3-year preventive maintenance budget.		Where 1.0% of building energy consumption or 10 kWp (whichever is the higher), <i>OR</i>	2		
Where 2.5% of building energy consumption or 40 kWp (whichever is the higher)  EE3 ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level. Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV ≤ 46 W/m² Lightweight Roof U-value ≤ 0.35 W/m²K Heavyweight Roof U-value ≤ 0.5 W/m²K Ughtweight Roof U-value ≤ 0.30 W/m²K Heavyweight Roof U-value ≤ 0.5 W/m²K Heavyweight Roof U-value S 0.5 W/m²K Heavyweight Roof		Where 1.5% of building energy consumption or 20 kWp (whichever is the higher), <i>OR</i>	3		
EE3 ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV  Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level. Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV ≤ 46 Wim² Lightweight Roof U-value ≤ 0.35 W/m²K Heavyweight Roof U-value ≤ 0.5 W/m²K  OTTV ≤ 44 W/m² Lightweight Roof U-value ≤ 0.30 W/m²K Heavyweight Roof U-value ≤ 0.30 W/m²K Heavyweight Roof U-value ≤ 0.25 W/m²K  OTTV ≤ 42 W/m² Lightweight Roof U-value ≤ 0.25 W/m²K Heavyweight Roof U-value ≤ 0.25 W/m²K  OTTV ≤ 38 W/m² Lightweight Roof U-value ≤ 0.15 W/m²K Heavyweight Roof U-value ≤ 0.15 W/m²K Heavyweight Roof U-value ≤ 0.15 W/m²K  EE4 HOME OFFICE & CONNECTIVITY  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, or High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Essure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventicy strategy:  2. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventicy strategy:  2. Provide a vidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings With Common Management:  1. Provide a vidence of documented plan for at least 3-year preventive maintenance budget.		Where 2.0% of building energy consumption or 30 kWp (whichever is the higher), <i>OR</i>	4		
Establish EE Performance to reduce dependence on Energy to keep indoor environment at satisfactory comfort level.  Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV ≤ 46 W/m² Lightweight Roof U-value ≤ 0.35 W/m²K Heavyweight Roof U-value ≤ 0.30 W/m²K Heavyweight Roof U-value ≤ 0.30 W/m²K Heavyweight Roof U-value ≤ 0.30 W/m²K Heavyweight Roof U-value ≤ 0.25 W/m²K OTTV ≤ 40 W/m² Lightweight Roof U-value ≤ 0.25 W/m²K Heavyweight Roof U-value ≤ 0.25 W/m²K OTTV ≤ 40 W/m² Lightweight Roof U-value ≤ 0.25 W/m²K OTTV ≤ 40 W/m² Lightweight Roof U-value ≤ 0.25 W/m²K Heavyweight Roof U-value ≤ 0.25 W/m²K OTTV ≤ 38 W/m² Lightweight Roof U-value ≤ 0.25 W/m²K Heavyweight Roof U-value ≤ 0.15 W/m²K Heavyweight Roof U-value ≤ 0.15 W/m²K EE4 HOME OFFICE & CONNECTIVITY  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, OR High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period, Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage;  2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Withcourt Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.		Where 2.5% of building energy consumption or 40 kWp (whichever is the higher)	5		
Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.  OTTV ≤ 46 W/m² Lightweight Roof U-value ≤ 0.35 W/m²K  Heavyweight Roof U-value ≤ 0.30 W/m²K  Lightweight Roof U-value ≤ 0.30 W/m²K  Ughtweight Roof U-value ≤ 0.40 W/m²K  OTTV ≤ 42 W/m² Lightweight Roof U-value ≤ 0.40 W/m²K  OTTV ≤ 42 W/m² Lightweight Roof U-value ≤ 0.25 W/m²K  Heavyweight Roof U-value ≤ 0.25 W/m²K  Heavyweight Roof U-value ≤ 0.25 W/m²K  OTTV ≤ 40 W/m² Lightweight Roof U-value ≤ 0.20 W/m²K  Heavyweight Roof U-value ≤ 0.25 W/m²K  OTTV ≤ 38 W/m² Lightweight Roof U-value ≤ 0.15 W/m²K  Heavyweight Roof U-value ≤ 0.15 W/m²K  Ensure that Sepace and working from Home thereby discourage avoidable commuting.  Etc.  Multiple-use type developments, OR High speed internet access available at homes > 1MB/s  Etc.  SustainABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage;  2. Provide evidence of documented plan for at least 3-year facility maintenance budget. OR  Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.	EE3	ADVANCED EE PERFORMANCE BASED ON OTTV & RTTV			
Lightweight Roof U-value \$ 0.35 W/m²K		Computed OTTV and RTTV to show lower dependence on Energy to maintain indoor thermal comfort.			
Lightweight Roof U-value ≤ 0.30 W/m²K Heavyweight Roof U-value ≤ 0.4 W/m²K  OTTV ≤ 42 W/m² Lightweight Roof U-value ≤ 0.25 W/m²K Heavyweight Roof U-value ≤ 0.25 W/m²K Heavyweight Roof U-value ≤ 0.25 W/m²K  OTTV ≤ 40 W/m² Lightweight Roof U-value ≤ 0.2 W/m²K  OTTV ≤ 40 W/m² Lightweight Roof U-value ≤ 0.2 W/m²K  OTTV ≤ 40 W/m² Lightweight Roof U-value ≤ 0.2 W/m²K  OTTV ≤ 38 W/m² Lightweight Roof U-value ≤ 0.15 W/m²K  Heavyweight Roof U-value ≤ 0.15 W/m²K  Heavyweight Roof U-value ≤ 0.15 W/m²K  EE4 HOME OFFICE & CONNECTIVITY  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, OR High speed internet access available at homes > 1 MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year preventive maintenance budget; OR  Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.		Lightweight Roof U-value ≤ 0.35 W/m²K	2		
Cotty < 42 W/m²   Lightweight Roof U-value ≤ 0.25 W/m²K   Heavyweight Roof U-value ≤ 0.3 W/m²K   Eavyweight Roof U-value ≤ 0.2 W/m²K   8   Eavyweight Roof U-value ≤ 0.2 W/m²K   Eavyweight Roof U-value ≤ 0.2 W/m²K   Eavyweight Roof U-value ≤ 0.2 W/m²K   Eavyweight Roof U-value ≤ 0.15 W/m²K   Eavyweight Roof U-value ≤ 0.2 W/m²K   Eavyweight Roof U-value ≤ 0.15 W/m²K   Eavyweight Roof		Lightweight Roof U-value ≤ 0.30 W/m²K	4	40	
Lightweight Roof U-value ≤ 0.2 W/m²K Heavyweight Roof U-value ≤ 0.2 W/m²K  OTTV ≤ 38 W/m² Lightweight Roof U-value ≤ 0.15 W/m²K Heavyweight Roof U-value ≤ 0.15 W/m²K Heavyweight Roof U-value ≤ 0.15 W/m²K Heavyweight Roof U-value ≤ 0.15 W/m²K  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, OR High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.  3		Lightweight Roof U-value ≤ 0.25 W/m²K	6	10	
Lightweight Roof U-value ≤ 0.15 W/m²K Heavyweight Roof U-value ≤ 0.15 W/m²K  Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, OR High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.  3		Lightweight Roof U-value ≤ 0.2 W/m²K	8		
Encourage dual use spaces and working from Home thereby discourage avoidable commuting.  Multiple-use type developments, OR High speed internet access available at homes > 1MB/s  EES SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.  3		Lightweight Roof U-value ≤ 0.15 W/m²K	10		
Multiple-use type developments, OR High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Without Common Management: 1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.  3	EE4	HOME OFFICE & CONNECTIVITY			
Multiple-use type developments, OR High speed internet access available at homes > 1MB/s  EE5 SUSTAINABLE MAINTENANCE  Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.  3		Encourage dual use spaces and working from Home thereby discourage avoidable commuting.			
Ensure that the building's energy related systems will continue to perform as intended beyond the 12 months Defects & Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Without Common Management: 1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.			2	2	
& Liability Period. Document Green Building Design features and strategies for user information and guide to sustain performance during occupancy.  Buildings With Common Management:  1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage;  2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Without Common Management:  1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.	EE5	SUSTAINABLE MAINTENANCE			
1. Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage; 2. Provide evidence of documented plan for at least 3-year facility maintenance and preventive maintenance budget; OR  Buildings Without Common Management: 1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.		& Liability Period. Document Green Building Design features and strategies for user information and guide to sustain			
1. Provide a evidence of documented plan for at least 3-year preventive maintenance budget.		<ol> <li>Provide a designated building maintenance office equipped with facilities (including tools and instrumentation) and inventory storage;</li> </ol>	3	3	
			3		
ENERGY EFFICIENCY (EE) TOTAL 23		ENERGY EFFICIENCY (EE)	TOTAL	23	

## 2

## **INDOOR ENVIRONMENTAL QUALITY (EQ)**

AIR QUALITY, LIGHTING, VISUAL & ACOUSTIC COMFORT | VERIFICATION

### 11 POINTS

ITEM	AREA OF ASSESSMENT	DETAIL POINTS	MAX POINTS	SCORE		
AIR C	QUALITY, LIGHTING, VISUAL & ACOUSTIC COMFORT					
EQ1	MINIMUM IAQ PERFORMANCE					
	Establish minimum indoor air quality (IAQ) performance to enhance indoor air quality in building, thus contributing to the comfort and well-being of the occupants.					
	Meet the minimum requirements of ventilation rate in the local building code	1	2			
	Provide cross ventilation for all public and circulation spaces	2				
EQ2	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 UBBL has a daylight factor in the range 1.0 – 3.5% as measured at floor level;		2			
	if > 50% of Habitable spaces, <b>OR</b>	1	_			
	if > 75% of Habitable spaces	2				
EQ3	SOUND INSULATION					
	Encourage and recognise building that is designed with adequate insulation between dwelling units.  Ensure that the air bourne sound penetration between spaces are controlled within the following criteria;					
	Inter dwelling sound penetration between dewelling units < 45 dBAeq.	1	2			
	Intra dwelling air bourne sound penetration between walls in the same dwelling unit should not exceed the following values:  Bedroom < 40 dBAeq Other areas < 30 dBAeq	1	_			
EQ4	GOOD QUALITY CONSTRUCTION					
	Encourage and recognise good quality construction – first time right – that does not require re-work that wastes materials and labour.					
	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). Must achieve a minimum score of 70%	1	1			
EQ5	VOLATILE ORGANIC COMPOUNDS					
	Encourage and recognise projects that reduce the detrimental impact on occupant health from finishes emitting internal air pollutants. Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants. Volatile Organic Compound (VOC) content to comply with requirements specified in international labelling schemes recognised by GBI.  0.5 point is awarded for each of the following up to a maximum of 1 point:  1. Low VOC paint and coating 2. Low VOC carpet or flooring 3. Low VOC adhesive and sealant OR no adhesive and sealant used.	1	1			
EQ6	FORMALDEHYDE MINIMISATION					
	Reduce the exposure of occupants to formaldehyde and promote good indoor air quality in the living space. Products with no added urea formaldehyde are to be used.  0.5 point is awarded for each of the following up to a maximum of 1 point:  1. Composite wood and agrifiber products defined as: particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates and door cores;  2. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies;  3. Insulation foam;  4. Draperies	1	1			
VERII	FICATION					
EQ7	POST OCCUPANCY EVALUATION: VERIFICATION					
	Provide for the assessment of comfort of the building occupants over time.					
	Commit to implement a post-occupancy comfort survey of building occupants within a period of 12 months after occupancy. This survey should collect anonymous responses about thermal comfort, visual comfort and acoustic comfort in a building. This should include an assessment of overall satisfaction with thermal, visual and acoustic performance and identification of thermal-related, visual-related and acoustic-related problems.	1	2			
	Develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with the overall comfort in the building. This plan should include measurement of relevant environmental variables in problem areas.	1				
	INDOOR ENVIRONMENTAL QUALITY (EQ	TOTAL	11			

8

## 3

## **SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)**

SITE PLANNING & TRANSPORT | SITE & CONSTRUCTION MANAGEMENT

M	AREA	OF ASSESSMENT	DETAIL POINTS	MAX POINTS	scoi
ΓΕ	PLANN	IING & TRANSPORT			
11	SITE SI	ELECTION & PLANNING			
	Propose	d development is appropriate for the site and complies with the Local Plan or Structure Plan for the area.			
		posed building must comply with the following requirements:			
	1. The	e Structure Plan for the area	1	1	
		D/OR e Local Plan where available			
	2. Infr	astructure requirement is available for the area.			
12	PUBLIC	TRANSPORTATION ACCESS			
	transpor	ge the selection of sites close to transport hubs and the planning of new housing areas to encourage the use of public t. This is to reduce the current and future heavy dependence on private transport, which is the greatest contributor to ouse Gas (GHG) emission.			
	transpor	re awarded according to proximity of the development to public transport hubs and quality of the access to the thub. For new housing areas, the provision of transport hubs for the housing concerned with proper shelter, is, shuttle facilities and parking facilities are encouraged. Points are awarded according to the subsection categories.		12	
	NOTE: S	SELECT EITHER SM2A & SM2B OR SM2C & SM2D			
		Distance from Mass Transport Station/Hub to building within 1km (50% of points if from Shuttle Bus Stop)			
		0 - 250m	8		
	SM2A	251 - 500m	6	8	
		501 - 750m	4		
		751m - 1km	2		
		Walkway from building to Mass Transport Station if less than 750m from Mass Transport Station			
		Dedicated footpath	2		
		Covered walkway	3		
	SM2B	Covered walkway that incorporates provision for the handicapped	4	4	
		OR			
		Sheltered and secured waiting area for shuttle van or bus in the residential building if more than 750m from Mass Transport Station	4		
		Transport Terminal within the Residential Area with covered seating and waiting area			
	SM2C	for a minimum of 10% of the total number of residential units		Т	
		Score is average of points of all residential units in the residential area as for <b>SM2A</b>	8	8	
		Walkway from building to Transport Terminal if less than 750m from Transport Terminal:			
		Dedicated footpath	2		
		Covered walkway	3		
		Covered walkway that incorporates provision for the handicapped	4		
		OR			
	SM2D	Car park provision next to Transport Terminal:			
		Car park provision for at least 20% of total number of residential units not more than 250m from the Terminal	4	4	
		OR			
		Designated bicycle lane provision in at least 90% of the Residential area and a Secured bicycle parking area in t Transport Terminal for 10% of the total number of residential units:	he		
		Provision of Bicycle Lanes	2		
		AND Provision of Bicycle Parking Area	2		

### **GREEN BUILDING INDEX ASSESSMENT CRITERIA FOR RNC**

ITEM	AREA (	DF ASSESSMENT	DETAIL POINTS	MAX POINTS	SCORE
SM3	сомм	UNITY SERVICES & 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 after working hours, which is the greatest contributor to GHG emission.				
		e awarded according to proximity of the development to community amenities. Points are awarded according to the on categories.			
	SM3A	Basic Amenities as listed below are provided or are available within 750m of the residential units (Less 1 point if more than 750m away):  1. Grocery Store or Mini-market  2. Restaurant or Coffee Shop	4		
		Surau or Mosque     4. Playground or Public Park  Other Amenities as listed below are provided or are available within 750m of the residential units		8	
	SM3B	(0.5 point per item or equivalent up to maxiumm of 2 points. Less 0.5 point if more than 750m away):  1. Clinic or Medical Center 2. Police Station or Police Pondok 3. School or Creche 4. Bank, Post Office or ATM	2		
	SM3C	Additional Amenities as listed below are provided or are available within 750m of the residential units  (0.5 point per item or equivalent up to maxiumm of 2 points. Less 0.5 point if more than 750m away):  1. Library  2. Community Center or Hall  3. Wet Market or Supermarket 4. Barber Shop  5. Laundry	2		
SM4	OPEN S	SPACES, LANDSCAPING AND HEAT ISLAND EFFECT	'		
		ment should have smaller footprints and more landscaping, thereby reducing the well known effects of heat islands ard scaped areas.	1	4	
	Provision	of landscaping with indigenous plants to 10% of total development area	1	4	
	Provision	of additional similar landscaping of every extra 5%: 1 point up to a maximum of 3 points	3		
SITE	& CON	STRUCTION MANAGEMENT			
SM5	CONST	RUCTION SYSTEM & SITE MANAGEMENT			
	the pollu	ge IBS and reduce on-site construction. Reduce material wastage and construction wastage to landfill sites. Reduce ting effects of construction and from workers during construction.			
	impleme The plan	pollution from construction activities by controlling pollution from waste and rubbish from workers. Create and nt a Site Amenities Plan for all construction workers associated with the project.  shall describe the measures implemented to accomplish the following objectives:	1		
	2. Pre 3. Pre	oper accommodation for construction workers at the site or at temporary rented accommodation nearby.  Event pollution of storm sewer or receiving stream by having proper septic tank.  Event polluting the surrounding area from open burning and proper disposal of domestic waste.  Evolution of the surrounding area from open burning and proper disposal of domestic waste.	1	3	
	CIDB IBS score ≥ 50%, <b>OR</b>				
	CIDB IBS	score ≥ 70%	2		
SM6	STORM	WATER MANAGEMENT			ı
	Manage developr	surface water run off from developments. Reduce the pollution and storm water loading of the river systems from the ment.			
		lood risk. Retain rainwater for recycling and appropriate use.	I .	3	
	_ '	s with MASMA minimum requirements	1		
	Exceeds	MASMA requirements by 30%: entitled to 2 additional points pro rated for lower values	2		
SM7		/ELOPMENT OF EXISTING SITES & BROWNFIELD SITES			
	rehabilita	ge development in environmentally sensitive areas. Encourage re-development of existing sites. Reward tion of Brownfield site and development in the rehabilitated sites.		4	
		opment of existing sites or refurbishment of existing building	2	•	
<b>6</b> 1.		ation of brownfield sites	2		
SM8		ING ENVIROMENTALLY SENSITIVE AREAS			
	Avoid de	velopment of inappropriate sites and reduce the environmental impact from the location of a building on a site.	I		
	• Prin	evelop buildings, hardscape, roads or parking areas on portions of sites that meet any one of the following criteria: ne agriculture land as defined by the Town and Country Planning Act d that is specifically identified as habitat for any species threatened or endangered lists hin 30 meters of any wetlands as defined by the Structure Plan of the area.			
	whicheve	n setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, er is more stringent:	2	2	
	whi	viously undeveloped land that is within 15 meters of a water body, defined as seas, lakes, rivers, streams and tributaries ch support or could support fish, recreation or industrial use. d which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is epted in trade by the public landowner.			
	acc	d which is classified as Class IV (steeper than 30 degrees)			
SM9	acc • Lan	d which is classified as Class IV (steeper than 30 degrees)  NG USER MANUAL			
SM9	BUILDI  Documer	<u> </u>	2	2	



# MATERIALS & RESOURCES (MR) REUSED AND RECYCLED MATERIALS | SUSTAINABLE RESOURCES

ITEM	AREA OF ASSESSMENT	DETAIL POINTS	MAX POINTS	SCORE			
REUS	REUSED AND RECYCLED MATERIALS						
MR1	STORAGE & COLLECTION OF RECYCLABLES						
	Facilitate the reduction of waste generated by construction that is hauled and disposed off in landfills and recycling after occupancy.						
	During Construction, provide dedicated area(s) and storage for collection of non-hazardous materials for recycling.	1	2				
	During Building Occupancy, provide permanent recycle bins.	1					
MR2	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 content and better building life cycle.						
	Use salvaged, refurbished or used materials such that the sum of these materials constitutes at least 1% (based on cost) of the total materials for the project. The used, refurbished and new building materials concerned are to be assessed for eco preferred content, durability, the product manufacturer's environmental management system and whether the product is modular and/ or designed for disassembly. To include reusability and the number of cycles on the usage (minimum 15 cycles) of temporary materials; such as temporary formwork system, temporary framing or support system, etc.	2	2				
	0.5 point for 1.0% and additional 0.25 point for every additional 0.5% up to a maximum of 2 points.						
MR3	CONSTRUCTION WASTE MANAGEMENT						
	Divert construction debris from disposal in landfill and incinerator. Redirect recyclable recovered resources back to manufacturing process. Redirect reusable materials to appropriate sites.						
	Recycle and/or salvage at least 50% of non-hazardous construction debris. Develop and implement a construction waste management plan that, at a minimum identifies the materials to be diverted from disposal and whether the materials will be sorted on site or co-mingled.		2				
	Quantify by measuring total tonnage of waste or truck loads of waste disposal.	2	2				
	1 point for 50% and additional 0.25 point for every additional 5% up to a maximum of 2 points.						
	If project uses high level of prefabrication with IBS score > 70, 1 point for every 10% increase in prefabrication up to a maximum of 2 points.						
SUST	AINABLE RESOURCES						
MR4	RECYCLED CONTENT MATERIALS						
	Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.						
	Use materials with recycled content such that the sum of post-consumer recycled plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project. Recycled content shall be defined in accordance with the International Organization of Standards Document.	1	1				
	0.5 point for 10% and 0.25 point for every additional 5% up to a maximum of 1 point.						
MR5	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						
	Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500km of the project site for a minimum of 20% (based on cost) of the total material value. Mechanical, electrical and plumbing components shall not be included. Only include materials permanently installed in the project.	1	1				
	0.5 point for 20% and 0.25 point for every additional 5% up to a maximum of 1 point.						
MR6	SUSTAINABLE TIMBER						
	Encourage environmentally responsible forest management:						
	Where ≥ 50% of wood-based materials and products used are certified.						
	These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. To include wood materials permanently installed and also temporarily purchased for the project.  Compliance with Forest Stewardship Council and Malaysian Timber Certification Council requirements.	1	1				
	Where the project has no timber content, this credit may be transferred to MR5						
	MATERIALS & RESOURCES (MR)	TOTAL	9				
	IVIAI ERIALS & RESOURCES (IVIK)	IOIAL	7				

# 5 WATER EFFICIENCY (WE) WATER HARVESTING & RECYCLING | INCREASED EFFICIENCY 12 POINTS

ITEM	AREA OF ASSESSMENT	DETAIL POINTS	MAX POINTS	SCORE	
WATI	ER HARVESTING & RECYCLING				
WE1	RAINWATER HARVESTING				
	Encourage rainwater harvesting that will lead to reduction in potable water consumption:				
	Rainwater harvesting that leads to ≥ 10% reduction in potable water consumption, <i>OR</i>	1			
	Rainwater harvesting that leads to > 30% reduction in potable water consumption, OR	2	4		
	Rainwater harvesting that leads to > 40% reduction in potable water consumption, <i>OR</i>	3			
	Rainwater harvesting that leads to > 50% reduction in potable water consumption	4			
WE2	WATER RECYCLING				
	Encourage water recycling that will lead to reduction in potable water consumption:				
	Treat and recycle ≥ 5% wastewater leading to reduction in potable water consumption, <i>OR</i>	0.5			
	Treat and recycle ≥ 10% wastewater leading to reduction in potable water consumption, <i>OR</i>	1	2		
	Treat and recycle ≥ 20% wastewater leading to reduction in potable water consumption, <i>OR</i>	1.5			
	Treat and recycle ≥ 30% wastewater leading to reduction in potable water consumption	2			
INCR	EASED EFFICIENCY				
WE3	WATER EFFICIENT LANDSCAPING				
	Encourage the design of system that does not require the use of potable water supply from the local water authority:				
	Reduce potable water consumption for landscape irrigation by $\geq$ 50% (e.g. through use of native or adaptive plants to reduce or eliminate irrigation requirement, <b>OR</b>	1	2		
	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:				
	Reduce annual potable water consumption by > 10%, <i>OR</i>	1			
	Reduce annual potable water consumption by > 30%, <i>OR</i>	2	4		
	Reduce annual potable water consumption by > 40%, <i>OR</i>	3			
	Reduce annual potable water consumption by > 50%	4			

#### **GREEN BUILDING INDEX ASSESSMENT CRITERIA FOR RNC**

INNOVATION (IN)
INNOVATION INITIATIVES | MAINTENANCE PROGRAM & GREEN BUILDING INDEX FACILITATOR

ITEM	AREA OF ASSESSMENT	DETAIL POINTS	MAX POINTS	SCORE	
IN1	INNOVATION IN DESIGN & ENVIRONMENTAL DESIGN INITIATIVES				
	Provide design team and project the opportunity to be awarded points for exceptional performance above the requirements set by GBI rating system:  1 point for each approved innovation and environmental design initiative up to a maximum of 5 points, such as:  • Innovative planning that displays "less is more" and "small is beautiful";  • Rehabilitation of existing buildings for re-use in innovative ways;  • Innovative use of building features to passively cool the building  • Heat recovery system (contributing to at least 10% of total required capacity);  • Mixed mode / low energy ventilation system;  • Waterless urinals (fitted to all male toilets);  • Central waste conveyance system;  • Central vacuum system	5	5		
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.				
	At least one principle participant of the project team shall be a Green Building Index Facilitator.	1	•		
	INNOVATION (IN) TOTAL				