



BCA GREEN MARK

BCA Green Mark for New Residential Buildings Version RB/4.1

Framework - BCA Green Mark for Residential Buildings (Version RB/4.1)

To achieve Green Mark Award



Pre-Requisite Requirement.

All relevant pre-requisite requirements for the specific Green Mark Rating are to be complied with



Energy Related Requirements
Minimum 30 points

Other Green Requirements
Minimum 20 points

Elective Requirement for Energy Improvement (Combination of the following items to meet min 30 points)

Part 1 - Energy Efficiency

- 1-1 Thermal Performance of Building Envelope – RETV
- 1-2 Naturally Ventilated Design and Air-Conditioning System
- 1-3 Daylighting
- 1-4 Artificial Lighting
- 1-5 Ventilation in Carparks
- 1-6 Lifts
- 1-7 Energy Efficient Features
- 1-8 Renewable Energy

Elective Requirement from Other Areas (Combination of the following items to meet min 20 points)

Part 2 - Water Efficiency

- 2-1 Water Efficient Fittings
- 2-2 Water Usage Monitoring
- 2-3 Irrigation System and Landscaping

Part 3 – Environmental Protection

- 3-1 Sustainable Construction
- 3-2 Sustainable Products
- 3-3 Greenery Provision
- 3-4 Environmental Management Practice
- 3-5 Green Transport
- 3-6 Stormwater Management

Part 4 - Indoor Environmental Quality

- 4-1 Noise Level
- 4-2 Indoor Air Pollutants
- 4-3 Waste Disposal
- 4-4 Indoor Air Quality in Wet Areas

Part 5 – Other Green Features

- 5-1 Green Features and Innovations

Point Allocations - BCA Green Mark for Residential Buildings (Version RB/4.1)

Category		Point Allocations	
(I) Energy Related Requirements			
Minimum 30 points	Part 1 : Energy Efficiency		
	RB 1-1 Thermal Performance of Building Envelope – RETV	15	
	RB 1-2 Naturally Ventilated Design and Air-Conditioning System	22	
	RB 1-3 Daylighting	6	
	RB 1-4 Artificial Lighting	10	
	RB 1-5 Ventilation in Carparks	6	
	RB 1-6 Lifts	1	
	RB 1-7 Energy Efficient Features	7	
	RB 1-8 Renewable Energy	20	
Category Score for Part 1 – Energy Efficiency		87 (Max)	
(II) Other Green Requirements			
Minimum 20 points	Part 2 : Water Efficiency		
	RB 2-1 Water Efficient Fittings	10	
	RB 2-2 Water Usage Monitoring	1	
	RB 2-3 Irrigation System and Landscaping	3	
	Category Score for Part 2 – Water Efficiency		14
	Part 3 : Environmental Protection		
	RB 3-1 Sustainable Construction	10	
	RB 3-2 Sustainable Products	8	
	RB 3-3 Greenery Provision	8	
	RB 3-4 Environmental Management Practice	8	
	RB 3-5 Green Transport	4	
	RB 3-6 Stormwater Management	3	
	Category Score for Part 3 – Environmental Protection		41
	Part 4 : Indoor Environmental Quality		
	RB 4-1 Noise Level	1	
	RB 4-2 Indoor Air Pollutants	2	
	RB 4-3 Waste Disposal	1	
RB 4-4 Indoor Air Quality in Wet Areas	2		
Category Score for Part 4 – Indoor Environmental Quality		6	
Part 5 : Other Green Features			
RB 5-1 Green Features & Innovations	7		
Category Score for Part 5 – Other Green Features		7	
Green Mark Score :		155 (Max)	

BCA Green Mark Award Rating and Prerequisite Requirements

Green Mark Score	Green Mark Rating
90 and above	Green Mark Platinum
85 to < 90	Green Mark Gold ^{Plus}
75 to < 85	Green Mark Gold
50 to <75	Green Mark Certified

Prerequisite Requirements for Residential Building Criteria

	Related Criteria
<p>(1) Building envelope design with Residential Envelope Transmittance Value (RETV) computed based on the methodology and guidelines stipulated in the Code on Envelope Thermal Performance for Buildings and this Standard.</p> <p>Green Mark Gold^{Plus} – RETV of 22 W/m² or lower Green Mark Platinum – RETV of 20 W/m² or lower</p>	<p>RB 1-1 – Thermal Performance of Building Envelope</p>
<p>(2) To be eligible for Green Mark Platinum rating, it is a requirement to use ventilation simulation modeling and analysis to identify the most effective building design and layout. The simulation results and the recommendations derived are to be implemented to ensure good natural ventilation. A minimum 70% of the typical dwelling units must have an area weighted average wind velocity of 0.60 m/s. Details and submission requirements on ventilation simulation can be found in Appendix C of the Certification Standard. Other than dwelling units, common areas like staircases and lobbies (excluding those that are located in basement areas) must also be designed as naturally ventilated spaces with provision of openable windows or other openings with aggregate area of not less than 5% of the space required to be ventilated.</p>	<p>RB 1-2 Naturally Ventilated Design and Air-Conditioning System</p>
<p>(3) Prescribed system efficiency of air-conditioning system for all dwelling units to be as follows:</p> <p>Green Mark Gold^{Plus} } Green Mark Platinum } Air-conditioners with 4-ticks that are certified under the Singapore Energy Labelling Scheme or equivalent COP</p>	
<p>(4) Minimum score under RB 3-1 Sustainable Construction</p> <p>Green Mark Gold^{Plus} ≥ 3 points Green Mark Platinum ≥ 5 points</p>	<p>RB 3-1 – Sustainable Construction</p>
<p>(5) Minimum score under RB 3-2 Sustainable Products</p> <p>Green Mark Gold^{Plus} ≥ 3 points Green Mark Platinum ≥ 4 points</p>	<p>RB 3-2 – Sustainable Products</p>

BCA Green Mark for Residential Building Criteria (Version RB/4.1)

Part 1 – Energy Efficiency	Green Mark Points
<p><u>RB 1-1 Thermal Performance of Building Envelope – Residential Envelope Transmittance Value (RETV)</u></p> <p>Enhance the overall thermal performance of building envelope to minimise heat gain thus reducing the overall cooling load when required.</p> <p><u>Baseline</u> : Maximum Permissible RETV = 25 W/m²</p> <p><u>Prerequisite Requirement</u> : <i>Green Mark Gold^{Plus} – RETV of 22 W/m² or less</i> <i>Green Mark Platinum – RETV of 20 W/m² or less</i></p>	<p>3 points for every reduction of 1 W/m² in RETV from the baseline</p> <p>Points scored = 75 – [3 x (RETV)] where RETV ≤ 25 W/m² (Up to 15 points)</p>
<p><u>RB 1-2 Naturally Ventilated Design and Air-Conditioning System</u></p> <p><u>(a) Dwelling Unit Indoor Comfort</u></p> <p>Enhance dwelling unit indoor comfort through the provision of good natural ventilation design and energy efficient air-conditioners</p> <p><u>Option 1 – Ventilation Simulation Modeling</u></p> <p>Use of ventilation simulation modeling and analysis or wind tunnel testing to identify the most effective building design and layout to achieve good natural ventilation for all unit types.</p> <p><u>Prerequisite Requirement</u> : <i>Green Mark Platinum – Minimum 70% of selected typical dwelling units with good natural ventilation. Common areas are to be designed as naturally ventilated spaces.</i></p> <p style="text-align: center;">OR</p> <p><u>Option 2 – Ventilation Design (without the use of simulation modeling) and Efficient Use of Air-Conditioning System</u></p> <p>(i) Air flow within dwelling units</p> <ul style="list-style-type: none"> • <u>Building layout design</u>: Proper design of building layout that utilizes prevailing wind conditions to achieve adequate cross ventilation. • <u>Dwelling unit design</u>: Good ventilation in indoor units through sufficient openings. <p>(ii) Provision of air-conditioning system</p> <p>Use of energy efficient air-conditioners that are certified under the Singapore Energy Labelling Scheme.</p> <p>Note (1) : Option 2(ii) is not applicable for developments where air-conditioners are not provided. Points will be scored and prorated accordingly under Option 2(i)</p> <p><u>Prerequisite Requirement</u> : <i>Green Mark Gold^{Plus} } Air-Conditioners with 4 ticks under the Singapore Energy Labelling Scheme or equivalent COP</i> <i>Green Mark Platinum }</i></p>	<p>0.2 point for every percentage of typical units with good natural ventilation</p> <p>Points scored = 0.2 x (% of typical units with good natural ventilation) (up to 20 points)</p> <p style="text-align: center;">OR</p> <p>0.5 point for every 10 % of units with window openings facing north and south directions Points scored = 0.5 x (% of units /10)</p> <p>0.5 point for every 10% of living rooms and bedrooms designed with true cross ventilation Points scored = 0.5 x (% rooms/10) (Up to 8 points)</p> <p>Extent of Coverage : At least 80% of the air-conditioners used in all dwelling units</p> <p>Air-conditioners labelled with : Three Ticks – 4 points Four Ticks – 8 points</p>

Part 1 - Energy Efficiency	Green Mark Points								
<p>(b) Natural Ventilation in Common Areas</p> <p>Design for natural ventilation in following common areas :</p> <p>(i) Lift lobbies and corridors</p> <p>(ii) Staircases</p>	<p>Extent of Coverage : At least 80% of the applicable areas</p> <p>1 point</p> <p>1 point</p>								
<p><u>RB 1-3 Daylighting</u></p> <p>Encourage design that optimises the use of effective daylighting to reduce energy use for artificial lighting.</p> <p>(a) Use of daylight and glare simulation analysis to verify the adequacy of ambient lighting levels in all dwelling unit's living and dining areas. The ambient lighting levels should meet the illuminance level and Unified Glare Rating (UGR) stated in SS CP 38 – Code of Practice for Artificial lighting in Buildings and SS 531:Part 1:2006 – Code of Practice for Lighting of Work Places.</p> <p>(b) Daylighting in the following common areas :</p> <p>(i) Lift lobbies and corridors</p> <p>(ii) Staircases</p> <p>(iii) Car parks</p>	<p>Extent of coverage: At least 80% of the units with daylighting provisions meet the minimum illuminance level and are within the acceptable glare exposure.</p> <p>Points scored based on the extent of perimeter daylight zones</p> <table border="1" data-bbox="874 728 1407 909"> <thead> <tr> <th>Distance from the Façade Perimeters (m)</th> <th>Points Allocation</th> </tr> </thead> <tbody> <tr> <td>≥ 3.0</td> <td>1</td> </tr> <tr> <td>4.0 – 5.0</td> <td>2</td> </tr> <tr> <td>> 5.0</td> <td>3</td> </tr> </tbody> </table> <p>(Up to 3 points)</p> <p>Extent of Coverage : At least 80% of the applicable areas</p> <p>1 point</p> <p>1 point</p> <p>1 point</p>	Distance from the Façade Perimeters (m)	Points Allocation	≥ 3.0	1	4.0 – 5.0	2	> 5.0	3
Distance from the Façade Perimeters (m)	Points Allocation								
≥ 3.0	1								
4.0 – 5.0	2								
> 5.0	3								
<p><u>RB 1-4 Artificial Lighting</u></p> <p>Encourage the use of energy efficient lighting in common areas to minimise energy consumption from lighting usage while maintaining proper lighting level.</p> <p><u>Baseline</u> = Maximum lighting power budget stated in SS 530</p>	<p>0.25 point for every percentage improvement in the lighting power budget</p> <p>Points scored = 0.25 x (% improvement)</p> <p>(Up to 10 points)</p>								
<p><u>RB 1-5 Ventilation in Carparks</u></p> <p>Encourage the use of energy efficient design and control of ventilation systems in car parks.</p> <p>(a) Carparks designed with natural ventilation.</p> <p>(b) CO sensors are used to regulate the demand for mechanical ventilation (MV).</p> <p>Note (2): Where there is a combination of different ventilation mode adopted for carpark design, the points obtained under RB 1-5 will be prorated accordingly.</p>	<p>Naturally ventilated carparks – 6 points</p> <p>Points scored based on the mode of mechanical ventilation provided</p> <p>Fume extract – 4 points</p> <p>MV with or without supply - 3 points</p> <p>(Up to 6 points)</p>								
<p><u>RB 1-6 Lifts</u></p> <p>Encourage the use of lifts with AC variable voltage and variable frequency (VVVF) motor drive or equivalent and energy efficient features such as sleep mode features or equivalent.</p>	<p>1 point</p>								

Part 1 – Energy Efficiency	Green Mark Points
<p><u>RB 1-7 Energy Efficient Features</u></p> <p>Encourage the use of energy efficient features which are innovative and have positive environmental impact.</p> <p>(a) Use of energy efficient products that are certified by approved local certification body.</p> <p>(b) Use of the following energy efficient features such as :</p> <ul style="list-style-type: none"> ▪ Heat recovery devices ▪ Regenerative lifts ▪ Cool paints ▪ Gas water heaters ▪ Calculation of Energy Efficiency Index (EEI) ▪ Provision of vertical greenery system that helps to reduce heat gain to buildings 	<p>Extent of Coverage : 90% of the applicable equipment type or product</p> <p>0.5 point for each eligible certified product (Up to 2 points)</p> <p>2 points for high impact item</p> <p>1 point for medium impact item</p> <p>0.5 point for low impact item</p> <p>(Up to 7 points)</p>
<p><u>RB 1-8 Renewable Energy</u></p> <p>Encourage the application of renewable energy sources such as solar energy in buildings.</p>	<p>3 points for every 1% replacement of electricity (exclude household's usage) by renewable energy</p> <p>(Up to 20 points)</p> <p><i>Condition : The points scored for renewable energy provision shall not result in a double grade jump in the GM rating (i.e. from GM Certified to Gold^{Plus} or Gold to Platinum rating).</i></p>
<p style="text-align: center;">PART 1 – ENERGY EFFICIENCY CATEGORY SCORE :</p>	<p style="text-align: center;">Sum of Green Mark Points obtained from RB 1-1 to 1-8</p>

Part 2 – Water Efficiency	Green Mark Points										
<p><u>RB 2-1 Water Efficient Fittings</u></p> <p>Encourage the use of water efficient fittings that are certified under the Water Efficiency Labeling Scheme (WELS).</p> <p>(a) Basin taps and mixers (b) Flushing cistern (c) Shower taps, mixers or showerheads (d) Sink/Bib taps and mixers (e) All other water fittings</p>	<table border="1"> <tr> <th colspan="2" data-bbox="815 185 1129 304">Rating based on Water Efficiency Labeling Scheme (WELS)</th> <td data-bbox="1134 185 1453 551" rowspan="4"> Points scored based on the number and water efficiency rating of the fitting type used (Up to 10 points) </td> </tr> <tr> <td data-bbox="815 304 975 367">Very Good</td> <td data-bbox="975 304 1129 367">Excellent</td> </tr> <tr> <th colspan="2" data-bbox="815 367 1129 430">Weightage</th> </tr> <tr> <td data-bbox="815 430 975 551">8</td> <td data-bbox="975 430 1129 551">10</td> </tr> </table>		Rating based on Water Efficiency Labeling Scheme (WELS)		Points scored based on the number and water efficiency rating of the fitting type used (Up to 10 points)	Very Good	Excellent	Weightage		8	10
Rating based on Water Efficiency Labeling Scheme (WELS)		Points scored based on the number and water efficiency rating of the fitting type used (Up to 10 points)									
Very Good	Excellent										
Weightage											
8	10										
<p><u>RB 2-2 Water Usage Monitoring</u></p> <p>Provision of private meters to monitor the major water usage such as irrigation, swimming pools and other water features.</p>	<p style="text-align: center;">1 point</p>										
<p><u>RB 2-3 Irrigation System and Landscaping</u></p> <p>Provision of suitable systems that utilise rainwater or recycled water for landscape irrigation and use of plants that require minimal irrigation to reduce potable water consumption.</p> <p>(a) Use of non potable water including rainwater for landscape irrigation. (b) Use of automatic water efficient irrigation system with rain sensor. (c) Use of drought tolerant plants that require minimal irrigation.</p>	<p style="text-align: center;">1 point</p> <p style="text-align: center;">Extent of Coverage : At least 50% of the landscape areas are served by the system 1 point</p> <p style="text-align: center;">Extent of Coverage : At least 80% of the landscape areas 1 point</p>										
<p style="text-align: center;">PART 2 – WATER EFFICIENCY CATEGORY SCORE :</p>	<p style="text-align: center;">Sum of Green Mark Points obtained from RB 2-1 to 2-3</p>										

Part 3 – Environmental Protection	Green Mark Points																								
<p>RB 3-1 Sustainable Construction</p> <p>Encourage recycling and the adoption of building designs, construction practices and materials that are environmentally friendly and sustainable.</p> <p>(a) Use of Sustainable and Recycled Materials</p> <p>(i) Green Cements with approved industrial by product (such as Ground Granulated Blastfurnace Slag (GGBS), silica fume, fly ash) to replace Ordinary Portland Cement (OPC) by at least 10% by mass for superstructural works.</p> <p>(ii) Recycled Concrete Aggregates (RCA) and Washed Copper Slag (WCS) from approved sources to replace coarse and fine aggregates for concrete production of main building elements.</p> <p>Note (3) : For structural building elements, the use of RCA and WCS shall be limited to maximum 10% replacement by mass of coarse/fine aggregates respectively or as approved by the relevant authorities.</p> <p>(b) Concrete Usage Index (CUI)</p> <p>Encourage designs with efficient use of concrete for building components.</p> <p><u>Prerequisite Requirement:</u> <i>Minimum score under this criterion:</i> Green Mark Gold^{plus} ≥ 3 points Green Mark Platinum ≥ 5 points</p>	<p>1 point</p> <p>1 point for every incremental of 0.5 times (0.5x) of the usage requirement (Up to 2x)</p> <table border="1" data-bbox="831 685 1441 958"> <thead> <tr> <th>Quantity of RCA /WCS (tons)</th> <th>Points Allocation</th> </tr> </thead> <tbody> <tr> <td>≥ 0.5 x usage requirement</td> <td>1</td> </tr> <tr> <td>≥ 1.0 x usage requirement</td> <td>2</td> </tr> <tr> <td>≥ 1.5 x usage requirement</td> <td>3</td> </tr> <tr> <td>≥ 2.0 x usage requirement</td> <td>4</td> </tr> </tbody> </table> <p>where usage requirement = 0.03 x (GFA in m²) (Up to 5 points for RB 3-1(a)(i) and (a)(ii))</p> <table border="1" data-bbox="831 1238 1441 1512"> <thead> <tr> <th>Project CUI (m³/m²)</th> <th>Points Allocation</th> </tr> </thead> <tbody> <tr> <td>≤ 0.70</td> <td>1</td> </tr> <tr> <td>≤ 0.60</td> <td>2</td> </tr> <tr> <td>≤ 0.50</td> <td>3</td> </tr> <tr> <td>≤ 0.40</td> <td>4</td> </tr> <tr> <td>≤ 0.35</td> <td>5</td> </tr> </tbody> </table>			Quantity of RCA /WCS (tons)	Points Allocation	≥ 0.5 x usage requirement	1	≥ 1.0 x usage requirement	2	≥ 1.5 x usage requirement	3	≥ 2.0 x usage requirement	4	Project CUI (m ³ /m ²)	Points Allocation	≤ 0.70	1	≤ 0.60	2	≤ 0.50	3	≤ 0.40	4	≤ 0.35	5
Quantity of RCA /WCS (tons)	Points Allocation																								
≥ 0.5 x usage requirement	1																								
≥ 1.0 x usage requirement	2																								
≥ 1.5 x usage requirement	3																								
≥ 2.0 x usage requirement	4																								
Project CUI (m ³ /m ²)	Points Allocation																								
≤ 0.70	1																								
≤ 0.60	2																								
≤ 0.50	3																								
≤ 0.40	4																								
≤ 0.35	5																								
<p>RB 3-2 Sustainable Products</p> <p>Promote use of environmentally friendly products that are certified by approved local certification body and are applicable to non-structural and architectural related building components.</p> <p><u>Prerequisite Requirement:</u> <i>Minimum score under this criterion:</i> Green Mark Gold^{plus} ≥ 3 points Green Mark Platinum ≥ 4 points</p>	<table border="1" data-bbox="805 1579 1463 2042"> <thead> <tr> <th colspan="3">Weightage based on the extent of environmental friendliness of products</th> <th rowspan="2">Points scored based on the weightage and the extent of coverage & impact</th> </tr> <tr> <th>Good</th> <th>Very Good</th> <th>Excellent</th> </tr> </thead> <tbody> <tr> <td>0.5</td> <td>1.5</td> <td>2</td> <td>1 point for high impact item 0.5 point for low impact item (Up to 8 points)</td> </tr> </tbody> </table>			Weightage based on the extent of environmental friendliness of products			Points scored based on the weightage and the extent of coverage & impact	Good	Very Good	Excellent	0.5	1.5	2	1 point for high impact item 0.5 point for low impact item (Up to 8 points)											
Weightage based on the extent of environmental friendliness of products			Points scored based on the weightage and the extent of coverage & impact																						
Good	Very Good	Excellent																							
0.5	1.5	2	1 point for high impact item 0.5 point for low impact item (Up to 8 points)																						

Part 3 – Environmental Protection	Green Mark Points															
<p>RB 3-3 Greenery Provision</p> <p>Encourage greater use of greenery, restoration of trees to reduce heat island effect.</p> <p>(a) Green Plot Ratio (GnPR) is calculated by considering the 3D volume covered by plants using the prescribed Leaf Area Index (LAI).</p> <p>(b) Restoration, conservation or relocation of existing trees on site.</p> <p>(c) Use of compost recycled from horticulture waste.</p>	<table border="1" data-bbox="842 208 1398 528"> <thead> <tr> <th>GnPR</th> <th>Points Allocation</th> </tr> </thead> <tbody> <tr> <td>1.0 to < 2.0</td> <td>1</td> </tr> <tr> <td>2.0 to < 3.0</td> <td>2</td> </tr> <tr> <td>3.0 to < 4.0</td> <td>3</td> </tr> <tr> <td>4.0 to < 5.0</td> <td>4</td> </tr> <tr> <td>5.0 to < 6.0</td> <td>5</td> </tr> <tr> <td>≥ 6.0</td> <td>6</td> </tr> </tbody> </table>	GnPR	Points Allocation	1.0 to < 2.0	1	2.0 to < 3.0	2	3.0 to < 4.0	3	4.0 to < 5.0	4	5.0 to < 6.0	5	≥ 6.0	6	<p>1 point</p> <p>1 point</p>
GnPR	Points Allocation															
1.0 to < 2.0	1															
2.0 to < 3.0	2															
3.0 to < 4.0	3															
4.0 to < 5.0	4															
5.0 to < 6.0	5															
≥ 6.0	6															
<p>RB 3-4 Environmental Management Practice</p> <p>Encourage the adoption of environmental friendly practices during construction and building operation.</p> <p>(a) Implement effective environmental management programmes including monitoring and setting of targets to minimise energy use, water use and construction waste.</p> <p>(b) Main builder that has good track records in the adoption of sustainable, environmentally friendly and considerate practices during construction such as the Green and Gracious Builder Award.</p> <p>(c) Building quality assessed under the Construction Quality Assessment System (CONQUAS) and Quality Mark Scheme.</p> <p>(d) Developer, main builder, M & E consultant and architect that are ISO 14000 certified.</p> <p>(e) Project team comprises Certified Green Mark Manager (GMM), Certified Green Mark Facilities Manager (GMFM) and Certified Green Mark Professional (GMP).</p> <p>(f) Provision of building users' guide with details of the environmental friendly facilities and features within the building and their functionalities in achieving the intended environmental performance during building operation.</p> <p>(g) Provision of facilities or recycling bins at each block of development for collection and storage of different recyclable waste such as paper, glass, plastic etc.</p>		<p>1 point</p> <p>1 point</p> <p>1 point each (Up to 2 points)</p> <p>0.25 point for each firm (Up to 1 point)</p> <p>0.5 point for certified GMM 0.5 point for certified GMFM 1 point for certified GMP (Up to 1 point)</p> <p>1 point</p> <p>1 point</p>														

Part 3 – Environmental Protection	Green Mark Points
<p><u>RB 3-5 Green Transport</u></p> <p>Promote environmental friendly transport options and facilities to reduce pollution from individual car use.</p> <p>(a) Good access to nearest MRT/LRT or bus stops.</p> <p>(b) Provision of covered walkway to facilitate connectivity and use of public transport.</p> <p>(c) Provision of electric vehicle charging stations within the development.</p> <p>(d) Provision of covered/sheltered bicycle parking lots.</p>	<p>1 point</p> <p>1 point</p> <p>Extent of Coverage : Minimum 1 number of electric vehicle charging station for every 100 carpark lots. (Cap at 5)</p> <p>1 point</p> <p>Points scored based on the number of bicycle parking lots provided</p> <p>1 point if the provision $\geq 10\%$ x number of dwelling units</p> <p>0.5 point if the provision $\geq 5\%$ x number of dwelling units</p>
<p><u>RB 3-6 Stormwater Management</u></p> <p>Encourage the treatment of stormwater run-off before discharge to public drains.</p> <p>Provision of infiltration features or design features as recommended in PUB's ABC Waters Design Guidelines :</p> <ul style="list-style-type: none"> ▪ Bioretention swales/ other bioretention systems ▪ Rain gardens ▪ Constructed wetlands ▪ Cleansing biotopes ▪ Retention ponds 	<p>Points scored based on the extent of the stormwater treatment.</p> <p>3 points for treatment of run-off from more than 35% of total site area or paved area</p> <p>2 points for treatment of run-off from 10% to 35% of total site area</p> <p>1 point for treatment of run-off from up to 10% of total site area</p> <p>(Up to 3 points)</p>
<p>PART 3 – ENVIRONMENTAL PROTECTION CATEGORY SCORE :</p>	<p>Sum of Green Mark Points obtained from RB 3-1 to 3-6</p>

Part 4 – Indoor Environmental Quality	Green Mark Points
<p><u>RB 4-1 Noise Level</u></p> <p>Building design to achieve ambient internal noise level as specified :</p> <p style="padding-left: 40px;">55 dB (6am-10pm) LeqA 45 dB (10pm-6 am) LeqA</p>	<p>1 point</p>
<p><u>RB 4-2 Indoor Air Pollutants</u></p> <p>Minimise airborne contaminants, mainly from inside sources to promote a healthy indoor environment.</p> <p>(a) Use of low volatile organic compounds (VOC) paints certified by approved local certification body.</p> <p>(b) Use of environmentally friendly adhesives that are certified by approved local certification body.</p>	<p style="text-align: center;">Extent of Coverage : At least 90% of the total internal wall areas</p> <p style="text-align: center;">1 point</p> <p style="text-align: center;">Extent of Coverage : At least 90% of the applicable areas</p> <p style="text-align: center;">1 point</p>
<p><u>RB 4-3 Waste Disposal</u></p> <p>Minimise airborne contaminants from waste by locating refuse chutes or waste disposal area at open ventilation areas such as service balconies or common corridors.</p>	<p>1 point</p>
<p><u>RB 4-4 Indoor Air Quality in Wet Areas</u></p> <p>Provision of adequate natural ventilation and daylighting in wet areas such as kitchens, bathrooms and toilets.</p>	<p style="text-align: center;">Points scored based on the % of applicable areas with such provision.</p> <p style="text-align: center;">1 point for 50% to 90% of applicable areas 2 points for more than 90% of applicable areas</p>
<p>PART 4 – INDOOR ENVIRONMENTAL QUALITY CATEGORY SCORE :</p>	<p>Sum of Green Mark Points obtained from RB 4-1 to 4-4</p>

Part 5 – Other Green Features	Green Mark Points
<p><u>RB 5-1 Green Features and Innovations</u></p> <p>Encourage the use of other green features which are innovative and have positive environmental impact.</p> <p>Examples :</p> <ul style="list-style-type: none"> ■ Pneumatic waste collection system ■ Carbon footprint of development ■ Calculation of Concrete Usage Index (CUI) ■ Dual chute system ■ Self cleaning façade system ■ Conservation of existing building structure ■ Water efficient washing machines with Good rating and above. 	<p>2 points for high impact item</p> <p>1 point for medium impact item</p> <p>0.5 point for low impact item</p> <p>(Up to 7 points)</p>
<p style="text-align: center;">PART 5 – OTHER GREEN FEATURES CATEGORY SCORE :</p>	<p style="text-align: center;">Sum of Green Mark Points obtained from RB 5-1</p>
<p>Green Mark Score (Residential)</p> <p>Green Mark Score (Res) = \sumCategory Score [(Part 1 – Energy Efficiency) + (Part 2 – Water Efficiency) + (Part 3 – Environmental Protection) + (Part 4 – Indoor Environmental Quality) + (Part 5 – Other Green Features)]</p> <p>where Category Score for Part 1 \geq 30 points and \sumCategory Score for Part 2, 3, 4 & 5 \geq 20 points</p>	