

## **BPD\_GM01**

### **GM Submission at BP stage for Residential Buildings**

All these forms and calculations are to be generated from the Green Mark (GM) e-filing system.

#### **Sample Forms Attached For Viewing Only**

Applicable for projects with 1<sup>st</sup> submission date for URA planning permission on or after 15<sup>th</sup> Jan 2013

The forms spell out all the elective requirements which the QPs and the other practitioners can choose for their design to meet the environmental sustainability requirement.

QPs are only required to provide salient information pertaining to the items that are relevant to their design and the GM e-filing system will automatically compute the score to be allocated for the items selected.

Documentary evidences need not be submitted together with these forms. However, QPs are advised to maintain such records. BCA may require such evidences to be submitted for auditing purpose.

<b>SUBMISSION OF GREEN MARK SCORE CALCULATIONS</b> <b>Regulation 7 of the Building Control (Environmental Sustainability) Regulations 2008 (Cap. 29)</b>	
Commissioner of Building Control Building & Construction Authority 5 Maxwell Road #02-00 Tower Block, MND Complex Singapore 069110	<b>INSTRUCTIONS</b> (1) Please refer to the Explanatory Notes attached before completing these forms via Green Mark (GM) e-Filing system. (2) Submit one copy of this form together with Form BPD_GM01_Appendix 1 (for residential building) and/or Form BPD_GM01_Appendix 2 (for non-residential building) with the application for approval of building plans.
<b>Section I (To be completed by Qualified Person)</b>	
1. I confirm that I have been appointed under section 8(1)(a) or 11(1)(d)(i) of the Building Control Act (Cap 29) as the qualified person in respect of the building works herein described. Project Reference No. : _____ GM e-Filing No.: _____ Description of building works: _____ _____ _____	
2. I hereby declare that the building works or parts thereof assessed and the numerical scores assigned to these building works or parts thereof using the scoring methodology specified in the Code for Environmental Sustainability of Buildings are correct. I further declare that the Green Mark score submitted herewith complies with the minimum environmental sustainability standard under the Building Control (Environmental Sustainability) Regulations and the Green Mark score calculations are as stated in Form BPD_GM01_Appendix 1 and/or Form BPD_GM01_Appendix 2. The Green Mark score for the proposed building works is _____ for residential buildings and/or _____ for non-residential buildings respectively.	
Name & Address of Professional Firm	Name & Signature of Qualified Person
Date:	Tel No.:
<b>Section II (To be completed by Appropriate Practitioners)</b>	
3. We hereby declare that the building works or parts thereof assessed and the numerical scores assigned to these building works or parts thereof using the scoring methodology specified in the Code for Environmental Sustainability of Buildings are correct.	
Name & Address of Professional Firm	Name & Signature of Practitioner for Mechanical Works
Date:	Tel No.:
Name & Address of Professional Firm	Name & Signature of Practitioner for Electrical Works
Date:	Tel No.:

<b>CALCULATIONS OF GREEN MARK SCORE FOR RESIDENTIAL BUILDINGS</b> <b>Regulation 7 of the Building Control (Environmental Sustainability) Regulations 2008 (Cap. 29)</b>		
<b>SECTION I : SUMMARY</b>		
Project Reference No.: _____		GM e-Filing No.: _____
The Gross Floor Area (GFA) for the building works, where applicable :		
Building Works	New GFA in m <sup>2</sup>	Existing GFA in m <sup>2</sup> (Major Retrofitting)
Residential		Not Applicable
Non-Residential		
Total		
Category Items	Max Points Allocated	Points Scored
<b>(I) Energy Related Requirements</b>		
<b>Part 1 : Energy Efficiency</b>		
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	
<b>Category Score for Part 1 - Energy Efficiency (Min 30 points) :</b>	<b>87</b>	

Project Reference No.: _____ GM e-Filing No.: _____		
<b>Category Items</b>	<b>Max Points Allocated</b>	<b>Points Scored</b>
<b>(II) Other Green Related Requirements</b>		
<b>Part 2 : Water Efficiency</b>		
RB 2-1 Water Efficient Fittings	10	
RB 2-2 Water Usage Monitoring	1	
RB 2-3 Irrigation System and Landscaping	3	
<b>Category Score for Part 2 - Water Efficiency :</b>	<b>14</b>	
<b>Part 3 : Environmental Protection</b>		
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	
<b>Category Score for Part 3 - : Environmental Protection :</b>	<b>41</b>	
<b>Part 4 : Indoor Environmental Quality</b>		
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 for Wet Areas	2	
<b>Category Score for Part 4 - Indoor Environmental Quality :</b>	<b>6</b>	
<b>Part 5 : Other Green Features</b>		
RB 5-1 Green Features & Innovations	7	
<b>Category Score for Part 5 - Other Green Features :</b>	<b>7</b>	
<b>Category Score for Part 2 to Part 5 (Min 20 points) :</b>	<b>68</b>	
<b>Category Score for Part 1 - Energy Efficiency (Min 30 points) :</b>	<b>87</b>	
<b>Green Mark Score (Min 50 points) - {Category Score for Part 1 (Min 30 points) + Category Score for Part 2 to Part 5 (Min 20 points)} :</b>	<b>155</b>	

The Green Mark score for the proposed building works is \_\_\_\_\_ for residential buildings.



Project Reference No.: _____	GM e-Filing No.: _____																				
<b>(I) Energy Related Requirements</b>																					
<b>Part 1 : Energy Efficiency cont'd</b>		<b>Max Points Allocated</b>	<b>Points Scored</b>																		
<b>RB 1-3 Daylighting</b>		<b>6</b>																			
<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 <span style="float:right; border:1px solid black; width:40px; height:15px; display:inline-block;"></span></p> <p>Extent of coverage : At least 80% of the units with effective daylighting provisions</p> <p>Distance from façade perimeter meeting minimum required illuminance level = <span style="border:1px solid black; width:40px; height:15px; display:inline-block;"></span> m</p> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="4" style="text-align:left; padding: 2px;"><i>Green Mark Points</i></th> </tr> <tr> <td style="padding: 2px;"><i>Distance from the façade perimeters (m)</i></td> <td style="padding: 2px;"><i>≥ 3.0</i></td> <td style="padding: 2px;"><i>4.0 - 5.0</i></td> <td style="padding: 2px;"><i>&gt; 5.0</i></td> </tr> <tr> <td style="padding: 2px;"><i>Points Allocated</i></td> <td style="padding: 2px;"><i>1</i></td> <td style="padding: 2px;"><i>2</i></td> <td style="padding: 2px;"><i>3</i></td> </tr> </table> <p>(b) Daylighting in Common Areas <span style="float:right; border:1px solid black; width:40px; height:15px; display:inline-block;"></span></p> <p>Extent of coverage : At least 80% of the applicable areas</p> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="padding: 2px;">(i) Lift lobbies and corridors <i>(1 point)</i></td> <td style="width:40px; height:15px; background-color:yellow;"></td> </tr> <tr> <td style="padding: 2px;">(ii) Staircases <i>(1 point)</i></td> <td style="width:40px; height:15px; background-color:yellow;"></td> </tr> <tr> <td style="padding: 2px;">(iii) Carparks <i>(1 point)</i></td> <td style="width:40px; height:15px; background-color:yellow;"></td> </tr> </table>		<i>Green Mark Points</i>				<i>Distance from the façade perimeters (m)</i>	<i>≥ 3.0</i>	<i>4.0 - 5.0</i>	<i>&gt; 5.0</i>	<i>Points Allocated</i>	<i>1</i>	<i>2</i>	<i>3</i>	(i) Lift lobbies and corridors <i>(1 point)</i>		(ii) Staircases <i>(1 point)</i>		(iii) Carparks <i>(1 point)</i>			
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(iii) Carparks <i>(1 point)</i>																					
<b>RB 1-4 Artificial Lighting</b>		<b>10</b>																			
<p>Artificial lighting in common areas. <span style="float:right; border:1px solid black; width:40px; height:15px; display:inline-block;"></span></p> <p>Percentage improvement in lighting power budget (compared with SS530) = <span style="border:1px solid black; width:40px; height:15px; display:inline-block;"></span> %</p> <p style="font-size: small; margin-top: 5px;"><i>Green Mark Points : 0.25 point for every % improvement; Max 10 points</i></p>																					
<b>RB 1-5 Ventilation in Carparks</b>		<b>6</b>																			
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;">Mode of Ventilation</th> <th style="width:10%;">Max Points (A)</th> <th style="width:50%;">Carpark Area (m<sup>2</sup>) (B)</th> </tr> </thead> <tbody> <tr> <td>Natural ventilation</td> <td style="text-align:center;">6</td> <td style="background-color:yellow;"></td> </tr> <tr> <td>Fume extract with CO sensors</td> <td style="text-align:center;">4</td> <td style="background-color:yellow;"></td> </tr> <tr> <td>Mechanical ventilation with CO sensors</td> <td style="text-align:center;">3</td> <td style="background-color:yellow;"></td> </tr> <tr> <td>Others (not listed above)</td> <td style="text-align:center;">-</td> <td style="background-color:yellow;"></td> </tr> </tbody> </table> <p style="font-size: small; margin-top: 5px;"><i>Green Mark Points : Points scored = <math>\sum(A \times B) / \sum B</math>; Max 6 points</i></p>		Mode of Ventilation	Max Points (A)	Carpark Area (m <sup>2</sup> ) (B)	Natural ventilation	6		Fume extract with CO sensors	4		Mechanical ventilation with CO sensors	3		Others (not listed above)	-						
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Natural ventilation	6																				
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Others (not listed above)	-																				
<b>RB 1-6 Lifts</b>		<b>1</b>																			
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 <i>(1 point)</i> .																					
<b>RB 1-7 Energy Efficient Features</b>		<b>7</b>																			
<p>(a) Use of energy efficient equipment or products that are certified by approved local certification body for at least 90% of the applicable equipment type or product <i>(0.5 point for each eligible certified equipment or product; Max 2 points)</i> <span style="float:right; border:1px solid black; width:40px; height:15px; display:inline-block;"></span></p> <p>(i) _____ <span style="float:right; border:1px solid black; width:40px; height:15px; display:inline-block;"></span></p> <p>(ii) _____ <span style="float:right; border:1px solid black; width:40px; height:15px; display:inline-block;"></span></p> <p>(iii) _____ <span style="float:right; border:1px solid black; width:40px; height:15px; display:inline-block;"></span></p> <p>(iv) _____ <span style="float:right; border:1px solid black; width:40px; height:15px; display:inline-block;"></span></p>																					

Project Reference No.: _____		GM e-Filing No.: _____	
<b>(I) Energy Related Requirements</b>			
<b>Part 1 : Energy Efficiency cont'd</b>		<b>Max Points Allocated</b>	<b>Points Scored</b>
<b>RB 1-7 Energy Efficient Features cont'd</b>			
(b)	The following energy efficient features are deemed acceptable :	<input type="checkbox"/>	
(i)	Use of heat recovery devices - more than 50% of all dwelling units (2 points) - at least 25% of all dwelling units (1 point) - in club house or other common facilities (0.5 point)	<input type="checkbox"/>	
(ii)	Use of thermal insulation or cool paints on east and west facing external walls with window-to-wall ratio (WWR) - less than 0.5 (2 points) - from 0.5 to 0.75 (1 point) - more than 0.75 (0.5 point)	<input type="checkbox"/>	
(iii)	Use of occupancy sensors for private lift lobbies/ staircases / common toilets - at least 50 nos. occupancy sensors installed (1 point) - less than 50 nos. occupancy sensors installed (0.5 point)	<input type="checkbox"/>	
(iv)	Provision of vertical greenery system on building facades abutting the living, dining and bedrooms areas of dwelling units and club house - more than 50% on building facades (2 points) - at least 25% on building facades (1 point) - in club house (0.5 point)	<input type="checkbox"/>	
(v)	Provision of gas water heater - at least 90% of all dwelling units (1 point) - at least 50% of all dwelling units (0.5 point)	<input type="checkbox"/>	
(vi)	Provision of clothes drying facilities and open spaces - at least 90% of all dwelling units (1 point) - at least 50% of all dwelling units (0.5 point)	<input type="checkbox"/>	
(vii)	Provision of better energy efficient lift system - at least 90% of the lifts with re-generative drives (2 points) - at least 90% of the lifts with gearless drive (1 point)	<input type="checkbox"/>	
(viii)	Use of sun pipes for natural lighting - more than 10 nos. of sun pipes installed (1 point) - at least 5 nos. of sun pipes installed (0.5 point)	<input type="checkbox"/>	
(ix)	Provision of ductless fan for basement ventilation (0.5 point)	<input type="checkbox"/>	
(x)	Calculation of Energy Efficiency Index (EEI) - for common facilities of the development (0.5 point)	<input type="checkbox"/>	
	EEI = <input type="text"/> kWh/m <sup>2</sup> /year		

Project Reference No.: _____		GM e-Filing No.: _____	
<b>(I) Energy Related Requirements</b>			
<b>Part 1 : Energy Efficiency cont'd.</b>		<b>Max Points Allocated</b>	<b>Points Scored</b>
<b>RB 1-7 Energy Efficient Features cont'd</b>			
(c) Items that are not listed above but with clearance from BCA	<input type="checkbox"/>		
(i) _____	<input type="checkbox"/>		
(ii) _____	<input type="checkbox"/>		
(iii) _____	<input type="checkbox"/>		
(iv) _____	<input type="checkbox"/>		
(v) _____	<input type="checkbox"/>		
(vi) _____	<input type="checkbox"/>		
(vii) _____	<input type="checkbox"/>		
<i>Green Mark Points : Max 5 points for items RB 1-7 (b) and (c). (2 points for high impact, 1 point for medium impact and 0.5 point for low impact)</i>			
<b>RB 1-8 Renewable Energy</b>		<b>20</b>	
Application of renewable energy sources in buildings	<input type="checkbox"/>		
Percentage replacement of electricity by renewable energy = <input type="text"/> %			
<i>Green Mark Points : 3 points for every % replacement (exclude household's usage); Max 20 points</i>			
<b>Category Score for Part 1 – Energy Efficiency (Min 30 points) :</b>		<b>87</b>	

Project Reference No.: \_\_\_\_\_ GM e-Filing No.: \_\_\_\_\_

<b>(II) Other Green Requirements</b>																		
<b>Part 2 : Water Efficiency</b>			<b>Max Points Allocated</b>	<b>Points Scored</b>														
<b>RB 2-1 Water Efficient Fittings</b>			<b>10</b>															
Use of water fittings that are certified under the Water Efficiency Labelling Scheme (WELS).																		
<table border="1"> <thead> <tr> <th rowspan="2">Water Fittings</th> <th colspan="2">Rating based on WELS</th> <th rowspan="2">Others</th> </tr> <tr> <th>Excellent</th> <th>Very Good</th> </tr> </thead> <tbody> <tr> <td>No. of Fittings (A)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weightage (B)</td> <td>10</td> <td>8</td> <td>-</td> </tr> </tbody> </table>					Water Fittings	Rating based on WELS		Others	Excellent	Very Good	No. of Fittings (A)				Weightage (B)	10	8	-
Water Fittings	Rating based on WELS		Others															
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Weightage (B)	10	8	-															
<i>Green Mark Points : Points scored = <math>\sum(A \times B) / \sum A</math>; Max 10 points</i>																		
<b>RB 2-2 Water Usage Monitoring</b>			<b>1</b>															
Provision of private meters to monitor major water usage system such as irrigation, swimming pools and other water features																		
<b>RB 2-3 Irrigation System and Landscaping</b>			<b>3</b>															
(a)	Use of non potable water including rainwater for landscape irrigation (1 point)																	
(b)	Use of automatic water efficient irrigation system with rain sensor for at least 50% of the landscape areas served by the system (1 point)																	
(c)	Use of drought tolerant plants require minimal irrigation for at least 80% of the landscape areas (1 point)																	
<b>Category Score for Part 2 – Water Efficiency :</b>			<b>14</b>															
<b>Part 3 : Environmental Protection</b>																		
<b>RB 3-1 Sustainable Construction</b>			<b>10</b>															
(a)	Use of Sustainable and Recycled Materials (Max 5 points)																	
(i)	Green Cements with approved industrial by-products (that is Ground Granulated Blastfurnace Slag (GGBS), silica fume, fly ash) to replace Ordinary Portland Cement (OPC) by at least 10% by mass for superstructure works. (1 point)																	
(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																	
<table border="1"> <thead> <tr> <th>Use of RCA and WCS to replace coarse and fine aggregates</th> <th>Total Quantity Used in tonnage</th> <th>Minimum Usage Requirement in tonnage [0.03 x (GFA in m<sup>2</sup>)]</th> </tr> </thead> <tbody> <tr> <td>* RCA (replace coarse)</td> <td></td> <td></td> </tr> <tr> <td>* WCS (replace fine)</td> <td></td> <td></td> </tr> </tbody> </table>					Use of RCA and WCS to replace coarse and fine aggregates	Total Quantity Used in tonnage	Minimum Usage Requirement in tonnage [0.03 x (GFA in m <sup>2</sup> )]	* RCA (replace coarse)			* WCS (replace fine)							
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<i>Green Mark Points : 1 point for every incremental of 0.5 times (0.5x) of the minimum usage requirement; (Up to 2x)</i>																		
(b)	Concrete Usage Index (CUI)																	
<table border="1"> <tbody> <tr> <td>Concrete Volume in m<sup>3</sup> (A)</td> <td></td> </tr> <tr> <td>Total Constructed Floor Area in m<sup>2</sup> (B)</td> <td></td> </tr> <tr> <td>CUI (C = A / B)</td> <td></td> </tr> </tbody> </table>					Concrete Volume in m <sup>3</sup> (A)		Total Constructed Floor Area in m <sup>2</sup> (B)		CUI (C = A / B)									
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<b>RB 3-2 Sustainable Products</b>		<b>8</b>																												
<p>Use of environmental friendly products that are certified by approved local certification body and are applicable for non-structural building components and construction <input type="checkbox"/></p> <table border="1"> <thead> <tr> <th rowspan="2">Environmental friendly products</th> <th colspan="3">Weightage based on extent of environmental friendliness</th> </tr> <tr> <th>Good</th> <th>Very Good</th> <th>Excellent</th> </tr> </thead> <tbody> <tr> <td>Points (A)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weightage (B)</td> <td>0.5</td> <td>1.5</td> <td>2.0</td> </tr> </tbody> </table> <p><i>Green Mark Points : 1 point for high impact, 0.5 point for low impact; Points scored = <math>\sum(A \times B)</math>; Max 8 points</i></p>		Environmental friendly products	Weightage based on extent of environmental friendliness			Good	Very Good	Excellent	Points (A)				Weightage (B)	0.5	1.5	2.0														
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<p>(a) Green Plot Ratio (GnPR) <input type="checkbox"/></p> <table border="1"> <tr> <td>Total Leaf Area in m<sup>2</sup> (A)</td> <td></td> </tr> <tr> <td>Site Area in m<sup>2</sup> (B)</td> <td></td> </tr> <tr> <td>GnPR (C = A / B)</td> <td></td> </tr> </table> <table border="1"> <thead> <tr> <th colspan="7">Green Mark Points</th> </tr> <tr> <th>GnPR</th> <th>1.0 to &lt;2.0</th> <th>2.0 to &lt;3.0</th> <th>3.0 to &lt;4.0</th> <th>4.0 to &lt;5.0</th> <th>5.0 to &lt;6.0</th> <th>≥6.0</th> </tr> </thead> <tbody> <tr> <td>Points Allocated</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> </tbody> </table>		Total Leaf Area in m <sup>2</sup> (A)		Site Area in m <sup>2</sup> (B)		GnPR (C = A / B)		Green Mark Points							GnPR	1.0 to <2.0	2.0 to <3.0	3.0 to <4.0	4.0 to <5.0	5.0 to <6.0	≥6.0	Points Allocated	1	2	3	4	5	6		
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(b) Restoration of trees on site, conserving or relocating of existing trees on site (1 point) <input type="checkbox"/>																														
(c) Use of compost recycled from horticulture waste (1 point). <input type="checkbox"/>																														
<b>RB 3-4 Environmental Management Practice</b>		<b>8</b>																												
(a) Implement effective environmental management programmes (1 point). <input type="checkbox"/>																														
(b) Main builder that has good track records in the adoption of sustainable, environmentally friendly and considerate practices during construction such as Green and Gracious Builder Award). (1 point). <input type="checkbox"/>																														
(c) Building quality assessed under Construction Quality Assessment System (CONQUAS) / Quality Mark Scheme (QMS) <input type="checkbox"/>																														
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(d) Firms ISO 14000 certified (0.25 point for each firm) <input type="checkbox"/>																														
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(i) Developer	<input type="checkbox"/>																													
(ii) Main builder	<input type="checkbox"/>																													
(iii) M&E consultant	<input type="checkbox"/>																													
(iv) Architect	<input type="checkbox"/>																													
(e) Project team comprises Green Mark Manager (GMM), Green Mark Facilities Manager (GMFM) and Green Mark Professional (GMP) (Max 1 point) <input type="checkbox"/>																														
<table border="1"> <tr> <td>(i) Certified GMM (0.5 point)</td> <td><input type="checkbox"/></td> </tr> <tr> <td>(ii) Certified GMFM (0.5 point)</td> <td><input type="checkbox"/></td> </tr> <tr> <td>(iii) Certified GMP (1 point)</td> <td><input type="checkbox"/></td> </tr> </table>		(i) Certified GMM (0.5 point)	<input type="checkbox"/>	(ii) Certified GMFM (0.5 point)	<input type="checkbox"/>	(iii) Certified GMP (1 point)	<input type="checkbox"/>																							
(i) Certified GMM (0.5 point)	<input type="checkbox"/>																													
(ii) Certified GMFM (0.5 point)	<input type="checkbox"/>																													
(iii) Certified GMP (1 point)	<input type="checkbox"/>																													
(f) Provision of building users' guide (1 point) <input type="checkbox"/>																														
(g) Provision of facilities or recycling bins at each block of the development for collection and storage of different recyclable waste such as paper, glass, plastic, etc, (1 point) <input type="checkbox"/>																														

Project Reference No.: _____		GM e-Filing No.: _____	
<b>(II) Other Green Requirements</b>			
<b>Part 3 : Environmental Protection cont'd</b>		<b>Max Points Allocated</b>	<b>Points Scored</b>
<b>RB 3-5 Green Transport</b>		<b>4</b>	
(a)	Good access to nearest MRT/LRT stations or bus stops (1 point)	<input type="text"/>	
(b)	Provision of covered walkway to facilitate connectivity and use of public transport (1 point)	<input type="text"/>	
(c)	Provision of electric vehicle charging stations within the development (1 point).	<input type="text"/>	
	Total No. of charging stations (A)	<input type="text"/>	
	Total No. of parking lots (B)	<input type="text"/>	
	<i>Minimum Provision : 1 charging station for every 100 parking lots, round up to the nearest hundred (Cap at 5)</i>		
(d)	Provision of covered/sheltered bicycles parking lots (Max 1 point)	<input type="text"/>	
	- at least 10% of the dwelling units (1 point)		
	- at least 5% of the dwelling units (0.5 point)		
<b>RB 3-6 Stormwater Management</b>		<b>3</b>	
	Treatment of stormwater runoff before discharge	<input type="text"/>	
	The extent of stormwater treatment		
	- more than 35% of total site area or paved area (3 points)		
	- more than 10% to 35% of total site area (2 points)		
	- up to 10% of total site area (1 point)		
<b>Category Score for Part 3 - Environmental Protection :</b>		<b>41</b>	
<b>Part 4 : Indoor Environmental Quality</b>			
<b>RB 4-1 Noise Level</b>		<b>1</b>	
	Building design to achieve ambient internal noise level as specified		
	55dB (6am – 10pm) LeqA		
	45dB (10pm – 6am) LeqA		
<b>RB 4-2 Indoor Air Pollutants</b>		<b>2</b>	
(a)	Use of low volatile organic compounds (VOC) paints certified by approved local certification body for at least 90% of the total internal areas (1 point)	<input type="text"/>	
(b)	Use of environmentally friendly adhesives certified by approved local certification body for at least 90% of the applicable areas (1 point).	<input type="text"/>	
<b>RB 4-3 Waste Disposal</b>		<b>1</b>	
	Locating refuse chutes or waste disposal area at open ventilation areas such as service balconies or common corridors.		
<b>RB 4-4 Indoor Air Quality in Wet Areas</b>		<b>2</b>	
	Provision of adequate natural ventilation and daylighting in wet areas such as kitchens, bathrooms and toilets.	<input type="text"/>	
	- more than 90% of all applicable areas (2 points)		
	- at least 50% of all applicable areas (1 point)		
<b>Category Score for Part 4 - Indoor Environmental Quality :</b>		<b>6</b>	

Project Reference No.: _____		GM e-Filing No.: _____	
<b>(II) Other Green Requirements</b>			
<b>Part 5 : Other Green Features</b>		<b>Max Points Allocated</b>	<b>Points Scored</b>
<b>RB 5-1 Green Features and Innovations</b>		<b>7</b>	
(a) The following green features are deemed acceptable :			
<b><u>(1) Water Efficiency</u></b>			
(i)	Use of self cleaning façade system - more than 75% of the applicable façade areas (2 points) - more than 50% of the applicable façade areas (1 point) - at least 25% of the applicable façade areas (0.5 point)	<input type="checkbox"/>	
(ii)	Use of integrated basin/cistern pedestal system - more than 50% of all dwelling units' flushing cisterns (2 points) - more than 25% of all dwelling units' flushing cisterns (1 point) - at least 10% of all dwelling units' flushing cisterns (0.5 point)	<input type="checkbox"/>	
(iii)	Use of grey water recycling system - all blocks of the development(2 points) - at least 1 block of the development (1 point)	<input type="checkbox"/>	
(iv)	Provision of system to recycle runoff from vertical green wall and sky garden - at least 25% of the green areas (1 point) - less than 25% of the green areas (0.5 point)	<input type="checkbox"/>	
(v)	Use of water efficient washing machine with WELS good rating and above - more than 90% of all dwelling units (1 point) - at least 50% of all dwelling units (0.5 point)	<input type="checkbox"/>	
<b><u>(2) Environmental Protection</u></b>			
(i)	Use of precast toilets - more than 75% of all toilets (2 points) - more than 50% of all toilets (1 point) - at least 25% of all toilets (0.5 point)	<input type="checkbox"/>	
(ii)	Provision of green roof and roof top garden - more than 50% of the roof areas (1 point) - at least 25% of the roof areas (0.5 point)	<input type="checkbox"/>	
(iii)	Provision of vertical greening in common areas - more than 75% of the applicable wall areas (2 points) - more than 50% of the applicable wall areas (1 point) - at least 25% of the applicable wall areas (0.5 point)	<input type="checkbox"/>	
(iv)	Provision of double refuse chutes to separate recyclable from non-recyclable waste (1 point).	<input type="checkbox"/>	
(v)	Use of non-chemical termite treatment system such as termite baiting system, anti-termite mesh, etc (0.5 point).	<input type="checkbox"/>	
(vi)	Use of at least 5 nos. of compost bins to recycle organic waste (0.5 point).	<input type="checkbox"/>	
(vii)	Use of non-chemical water treatment for swimming pools (0.5 point).	<input type="checkbox"/>	
(viii)	Conservation of existing buildings structure - more than 50% of existing structure or building envelope (2 points) - at least 25% of existing structure or building envelope (1 point)	<input type="checkbox"/>	

Project Reference No.: _____ GM e-Filing No.: _____			
<b>(II) Other Green Requirements</b>			
<b>Part 5 : Other Green Features cont'd</b>		<b>Max Points Allocated</b>	<b>Points Scored</b>
<b>RB 5-1 Green Features and Innovations cont'd</b>			
<b>(2) Environmental Protection</b> contd			
(ix)	Project Buildability Score (Bscore) above prevailing minimum requirement stated in relevant COP on Buildable Design. - Bscore > 5 points above minimum requirement (1 point) - Bscore > 3 points above minimum requirement (0.5 point)	<input type="checkbox"/>	
(x)	Calculation of carbon footprint of the development - Submission of complete carbon footprint calculation for all materials listed and in the prescribed format or a complete carbon footprint report of the development prepared by an independent carbon consultant (1 point) - Submission of carbon footprint calculation for any four building materials listed and in the prescribed format (0.5 point)	<input type="checkbox"/>	
(xi)	Computation of Concrete Usage Index (CUI) of the development (1.0 point)	<input type="checkbox"/>	
(xii)	Adoption of demolition protocol to maximise resource recovery of demolition materials for reuse or recycling - recovery rate of more than 35% crushed concrete waste to be sent to the approved recyclers with proper facilities (2 points) - recovery rate of at least 20% crushed concrete waste to be sent to the approved recyclers with proper facilities (1 point)	<input type="checkbox"/>	
<b>(3) Indoor Air Quality</b>			
(i)	Use of pneumatic waste collection system.(1 point)	<input type="checkbox"/>	
<b>(4) Others</b>			
(i)	Use of siphonic rainwater discharge system at roof (0.5 point)	<input type="checkbox"/>	
(b)	Items that are not listed above but with clearance from BCA :		
(i)	_____	<input type="checkbox"/>	
(ii)	_____	<input type="checkbox"/>	
(iii)	_____	<input type="checkbox"/>	
(iv)	_____	<input type="checkbox"/>	
(v)	_____	<input type="checkbox"/>	
(vi)	_____	<input type="checkbox"/>	
(vii)	_____	<input type="checkbox"/>	
<i>Green Mark Points : Max 7 points for items RB 5-1 (2 points for high impact, 1 point for medium impact and 0.5 point for low impact</i>			
<b>Category Score for Part 5 – Other Green Features :</b>		<b>7</b>	
<b>Category Score for Part 2 to 5 (Min 20 points) :</b>		<b>68</b>	
<b>Green Mark Score (Min 50 points) –{Category Score for Part 1 (Min 30 points) + Category Score for Part 2 to 5 (Min 20 points) }</b>		<b>155</b>	





## Explanatory Notes :

### Forms BPD\_GM01, BPD\_GM01\_Appendix 1 and BPD\_GM01\_Appendix 2

- 1) For building works that are subject to the Building Control (Environmental Sustainability) Regulation 2008, the Form BPD\_GM01 must be completed, accompanied with 1 set of Form BPD\_GM01\_Appendix 1 and/or 1 set of Form BPD\_GM01\_Appendix 2 where applicable. These forms are to be generated using the **Green Mark (GM) e-Filing System** accessible from BCA website and submitted together with the application for building plan approval.
- 2) For building works that involve mixed-use building which comprises both residential and non-residential buildings, the Green Mark score calculation as in Form BPD\_GM01\_Appendix 1 and Appendix 2 will have to be submitted together with the Form BPD\_GM01 unless the following condition apply :
  - Where any part of the building works that related to a non-residential building or residential building involve a gross floor area (GFA) of less than 2000m<sup>2</sup> and that of the other part of these building works, only the Green Mark score calculation of the larger part of these building works (Form BPD\_GM01\_Appendix 1 OR Appendix 2) are required to be submitted together with the Form BPD\_GM01.
  - For example, if the gross floor area (GFA) of the non-residential buildings is less than 2000m<sup>2</sup> and that of the residential buildings, only the Green Mark score calculation for the residential buildings that is Form BPD\_GM01\_ Appendix 1 will need to be submitted together with Form BPD\_GM01 for building plan approval as illustrated in Table 2-1 below.

**Table 2-1 – Applicable Criteria for Mixed-Use Buildings with New GFA ≥ 2000m<sup>2</sup>**

Project Type	Total New GFA Residential (m <sup>2</sup> )	Total New GFA Non-Residential (m <sup>2</sup> )	Form BPD_GM01_ Appendix 1	Form BPD_GM01_ Appendix 2
Mixed-use building	≥ 2000	≥ 2000	1 set	1 set
	≥ 2000	< 2000	1 set	Not applicable
	< 2000	≥ 2000	Not applicable	1 set
	< 2000	< GFA for Residential	1 set	Not applicable
	< GFA for Non-Residential	< 2000	Not applicable	1 set