

BPD_GM02

As-Built GM Submission before TOP for Non-Residential Buildings – Transit Stations

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 1st submission date for URA planning permission on or after 15th 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

For projects with the provision of air-conditioning system, the appropriate practitioners for Mechanical Works are required to e-sign and submit the as-built air-conditioning information in prescribed form in support of his declaration in BPD_GM01 forms together with the QP's BP submission. (Refer to the following link at <http://www.bca.gov.sg/EnvSusLegislation/others/Air-Con Info Template.pdf>.)

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

SUBMISSION OF AS-BUILT GREEN MARK SCORE CALCULATIONS Regulation 9 of the Building Control (Environmental Sustainability) Regulations 2008 (Cap. 29)	
Commissioner of Building Control Building & Construction Authority 5 Maxwell Road #02-00 Tower Block, MND Complex Singapore 069110	INSTRUCTIONS (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_GM02_Appendix 1 (for residential building) and/or Form BPD_GM02_Appendix 2 (for non-residential building) before making an application for TOP or CSC (if TOP is not applied for).
Section I (To be completed by Qualified Person)	
1. Project Reference No. : _____ GM e-Filing No.: _____ Description of building works: _____ _____ _____ _____	
2. I hereby declare that the completed 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 as-built 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_GM02_Appendix 2-NRB/ST. The as-built Green Mark score for the completed building works is _____.	
Name & Address of Professional Firm	Name & Signature of Qualified Person
Date:	Tel No.:
Section II (To be completed by Appropriate Practitioners)	
3. We hereby declare that the completed 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.:

CALCULATIONS OF AS-BUILT GREEN MARK SCORE FOR NON-RESIDENTIAL BUILDINGS Regulation 9 of the Building Control (Environmental Sustainability) Regulations 2008 (Cap. 29)		
SECTION I : SUMMARY		
Project Reference No.: _____ GM e-Filing No.: _____		
The Gross Floor Area (GFA) for the building works		
Building Works	New GFA in m ²	
Non-Residential (Station)		
Pls indicate Floor Area & Percentage (%), where applicable :		
Floor Area	Floor Area in m ²	% Floor Area
Air-conditioned spaces		
Non Air-conditioned spaces excluding carparks and common areas		
Total		
Category Items	Max Points Allocated	Points Scored
(I) Energy Related Requirements		
Part 1 : Energy Efficiency		
ST 1-1 Environmental Control Systems	27.0	
ST 1-2 Lighting Systems	12.0	
ST 1-3 Electrical Services	7.0	
ST 1-4 Lifts and Escalators	3.5	
ST 1-5 Energy Efficient Features	7.5	
Category Score for Part 1 – Energy Efficiency (Min 30 points) :	57.0	

Project Reference No.: _____		GM e-Filing No.: _____	
Category Items	Max Points Allocated	Points Scored	
(II) Other Green Requirements			
Part 2 : Water Efficiency			
ST 2-1	Water Efficient Fittings	6.0	
ST 2-2	Water Usage Monitoring	1.5	
ST 2-3	Water Consumption of Cooling Towers	3.5	
Category Score for Part 2 – Water Efficiency :		11.0	
Part 3 : Environmental Protection			
ST 3-1	Sustainable Construction	9.0	
ST 3-2	Sustainable Products	4.0	
ST 3-3	Greenery Provision	3.0	
ST 3-4	Site Selection	4.0	
ST 3-5	Environmental Management Practice	4.0	
ST 3-6	Public Transport Accessibility	15.0	
ST 3-7	Refrigerants	2.0	
Category Score for Part 3 – Environmental Protection :		41.0	
Part 4 : Indoor Environmental Quality			
ST 4-1	Thermal Comfort	1.0	
ST 4-2	Indoor Air Pollutants	2.0	
ST 4-3	Indoor Air Quality (IAQ) Management	2.0	
Category Score for Part 4 – Indoor Environmental Quality :		5.0	
Part 5 : Other Green Features			
ST 5-1	Green Features & Innovations	6.0	
Category Score for Part 5 – Other Green Features :		6.0	
Category Score for Part 2 to Part 5 (Min 20 points) :		63.0	
Category Score for Part 1 – Energy Efficiency (Min 30 points) :		57.0	
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)} :		120.0	

The as-built Green Mark score for the completed building works is _____ .

SECTION II : GREEN MARK SCORE CALCULATIONS DETAILS			
Project Reference No.: _____		GM e-Filing No.: _____	
(I) Energy Related Requirements			
Part 1 : Energy Efficiency		Max Points Allocated	Points Scored
ST 1-1 Environmental Control Systems		27.0	
<i>Where there is a combination of central chilled-water plant with unitary air-conditioners, the computation is based on the air-conditioning system with the larger aggregate capacity</i>			
(a) Water Cooled Chilled-Water Plant		[]	
Peak Building Cooling Load = [] RT			
Air-conditioning System efficiency = [] kW/RT			
<i>Green Mark Points : Max 20 points</i>			
Peak building cooling load (RT)	≥ 500	≥ 300 to < 500	< 300
<u>Baseline : Prerequisite Requirement</u> Minimum Design System Efficiency (DSE) for central chilled-water plant	0.70	0.80	0.85
Points for meeting prescribed chiller plant efficiency	15.0	12.0	7.0
Points for every % improvement in the chiller plant operating efficiency over the baseline	0.25	0.45	0.60
(b) Air Distribution System		[]	
Air Distribution System	% improvement in the air distribution system efficiency over baseline	Points Scored	
<u>Option 1</u> Fan System Motor Nameplate Power	[]	[]	
<u>Option 2</u> Fan System Input Power	[]	[]	
<i>Green Mark Points - 0.15 point for every % improvement; Max 3 points.</i>			
Buildings using <u>district cooling system</u> ,		[]	
<i>Note : No need to compute plant efficiency in item (a), points obtained will be prorated based on the air distribution system efficiency under item (b).</i>			
OR			
(c) Unitary Air-Conditioners		[]	
Peak Building Cooling Load = [] RT			
Air-conditioning System efficiency = [] kW/RT			
<i>Green Mark Points : Max 20 points</i>			
Peak building cooling load (RT)	≥ 500	< 500	
<u>Baseline : Prerequisite Requirement</u> Minimum Design System Efficiency (DSE) for unitary conditioners (kW/ RT)	0.80	0.90	
Points for meeting prescribed efficiency	12.0	10.0	
Points for every % improvement in the operating efficiency over the baseline	1.30	0.60	
(d) Mechanical Ventilation System for non-air-conditioning spaces		[]	
Mechanical Ventilation System	% improvement in the motor power requirement over baseline	Points Scored	
<u>Option 1</u> Fan System Motor Nameplate Power	[]	[]	
<u>Option 2</u> Fan System Input Power	[]	[]	
<i>Green Mark Points - 0.2 point for every % improvement; Max 4 points.</i>			

Project Reference No.: _____		GM e-Filing No.: _____																											
(I) Energy Related Requirements																													
Part 1 : Energy Efficiency cont'd			Max Points Allocated	Points Scored																									
ST 1-2 Lighting Systems			12.0																										
(a) Artificial Lighting [] <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="4"><i>Green Mark Points - Max 6 points. Baseline : Maximum lighting power budget stated in SS 530 or as approved</i></td> </tr> <tr> <td><i>Percentage of lighting power budget over the baseline</i></td> <td><i>≤90 %</i></td> <td><i>≤85 %</i></td> <td><i>≤80 %</i></td> </tr> <tr> <td><i>Points allocated</i></td> <td><i>4 points</i></td> <td><i>4.5 points</i></td> <td><i>6 points</i></td> </tr> </table>			<i>Green Mark Points - Max 6 points. Baseline : Maximum lighting power budget stated in SS 530 or as approved</i>				<i>Percentage of lighting power budget over the baseline</i>	<i>≤90 %</i>	<i>≤85 %</i>	<i>≤80 %</i>	<i>Points allocated</i>	<i>4 points</i>	<i>4.5 points</i>	<i>6 points</i>															
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(b) Daylighting in public areas (i.e. concourse and platform areas) of underground station (<i>Max 6 points</i>) [] <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width: 30%;"><i>Total Public areas in m² (concourse and platform areas)</i></td> <td colspan="2" style="text-align: center;"><i>Public areas with daylighting (0.5 point for every %)</i></td> </tr> <tr> <td style="text-align: center;"><i>Area in m²</i></td> <td style="text-align: center;"><i>% Area</i></td> </tr> <tr> <td style="background-color: yellow;"></td> <td style="background-color: yellow;"></td> <td style="background-color: lightgreen;"></td> </tr> </table>			<i>Total Public areas in m² (concourse and platform areas)</i>	<i>Public areas with daylighting (0.5 point for every %)</i>		<i>Area in m²</i>	<i>% Area</i>																						
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(a) Provision of low-loss service transformers (<i>Max 4 points</i>) [] <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Transformer Capacity</th> <th>No load loss at rated voltage</th> <th>Full load loss at rated voltage</th> <th>Points Allocated</th> <th>Points Scored</th> </tr> </thead> <tbody> <tr> <td>> 1 MVA</td> <td>< 0.25% of rated load</td> <td>< 2.50% of rated load</td> <td>3.0</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>> 1 MVA</td> <td>< 0.20% of rated load</td> <td>< 1.50% of rated load</td> <td>4.0</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>≤ 1 MVA</td> <td>< 0.35% of rated load</td> <td>< 2.50% of rated load</td> <td>3.0</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>≤ 1 MVA</td> <td>< 0.25% of rated load</td> <td>< 1.50% of rated load</td> <td>4.0</td> <td style="background-color: yellow;"></td> </tr> </tbody> </table>			Transformer Capacity	No load loss at rated voltage	Full load loss at rated voltage	Points Allocated	Points Scored	> 1 MVA	< 0.25% of rated load	< 2.50% of rated load	3.0		> 1 MVA	< 0.20% of rated load	< 1.50% of rated load	4.0		≤ 1 MVA	< 0.35% of rated load	< 2.50% of rated load	3.0		≤ 1 MVA	< 0.25% of rated load	< 1.50% of rated load	4.0			
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(b) Provision of sub-metering systems [] <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">(i) Lighting system for public areas</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>(ii) Air-conditioning system</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>(iii) Mechanical ventilation system for back of house plant rooms</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>(iv) Plumbing and sanitary systems</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>(v) Lifts and escalators system</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>(vi) Electrical reticulation system for tenants</td> <td style="background-color: yellow;"></td> </tr> </table> <p><i>Green Mark Points – 1.5 points for at least 50% of the systems listed and 3 points for all systems. Max 3 points.</i></p>			(i) Lighting system for public areas		(ii) Air-conditioning system		(iii) Mechanical ventilation system for back of house plant rooms		(iv) Plumbing and sanitary systems		(v) Lifts and escalators system		(vi) Electrical reticulation system for tenants																
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(b) Escalators with energy efficient features (<i>Max 2 points</i>) [] 0.5 point for each item and prorate based on extent of coverage <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">(i) Direct drive with gear box directly coupled to the main drive shaft</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>(ii) AC variable voltage and variable frequency (VVVF) motor drive</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>(iii) Standby speed mode</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>(iv) Standby stop mode</td> <td style="background-color: yellow;"></td> </tr> </table>			(i) Direct drive with gear box directly coupled to the main drive shaft		(ii) AC variable voltage and variable frequency (VVVF) motor drive		(iii) Standby speed mode		(iv) Standby stop mode																				
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Project Reference No.: _____		GM e-Filing No.: _____																
(I) Energy Related Requirements																		
Part 1 : Energy Efficiency cont'd		Max Points Allocated	Points Scored															
ST 1-5 Energy Efficient Features		7.5																
<p>(a) The following energy efficient features are deemed acceptable </p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">(i)</td> <td style="width: 85%;">Auto-condenser tube cleaning system (1 point)</td> <td style="width: 10%;"></td> </tr> <tr> <td>(ii)</td> <td>Variable speed chilled water pumps (1 point)</td> <td></td> </tr> <tr> <td>(iii)</td> <td>Automatic control devices to regulate the demand for mechanical ventilation for staircases and corridors (1 point)</td> <td></td> </tr> <tr> <td>(iv)</td> <td>Automatic control devices to regulate outdoor air supply to maintain the carbon dioxide (CO₂) concentration to below 700 ppm (1 point)</td> <td></td> </tr> <tr> <td>(v)</td> <td>Instrumentation for monitoring central cooled chilled-water plant efficiency in accordance with prescribed standard (1 point)</td> <td></td> </tr> </table>		(i)	Auto-condenser tube cleaning system (1 point)		(ii)	Variable speed chilled water pumps (1 point)		(iii)	Automatic control devices to regulate the demand for mechanical ventilation for staircases and corridors (1 point)		(iv)	Automatic control devices to regulate outdoor air supply to maintain the carbon dioxide (CO ₂) concentration to below 700 ppm (1 point)		(v)	Instrumentation for monitoring central cooled chilled-water plant efficiency in accordance with prescribed standard (1 point)			
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<p>(b) Use of energy efficient equipment or products that are certified by approved local certification body (0.5 point for each; Max 2 points) </p> <p>(i) _____ </p> <p>(ii) _____ </p> <p>(iii) _____ </p> <p>(iv) _____ </p>																		
<p>(c) Items that are not listed above but with clearance from BCA (2 points for every % energy saving) </p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 25%;">Total building energy consumption in kWh/year</th> <th colspan="2" style="text-align: center;">Energy Saving of each energy efficient feature proposed</th> </tr> <tr> <th style="width: 25%;">Total Energy Saving in kWh/year</th> <th style="width: 50%;">Total Energy Saving in %</th> </tr> </thead> <tbody> <tr> <td style="background-color: yellow;"> </td> <td style="background-color: yellow;"> </td> <td style="background-color: lightgreen;"> </td> </tr> </tbody> </table> <p>(i) _____</p> <p>(ii) _____</p> <p>(iii) _____</p> <p>(iv) _____</p> <p>(v) _____</p> <p>(vi) _____</p> <p>(vii) _____</p> <p>(viii) _____</p> <p>(ix) _____</p> <p>(x) _____</p>		Total building energy consumption in kWh/year	Energy Saving of each energy efficient feature proposed		Total Energy Saving in kWh/year	Total Energy Saving in %												
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<p><i>Green Mark Points : Max 7.5 points for ST 1-5</i></p>																		
Category Score for Part 1 – Energy Efficiency (Min 30 points) :		57.0																

Project Reference No.: _____		GM e-Filing No.: _____	
(II) Other Green Requirements			
Part 2 : Water Efficiency		Max Points Allocated	Points Scored
ST 2-1 Water Efficient Fittings		6.0	
Use of water fittings that are certified under the Water Efficiency Labelling Scheme (WELS) with very good or excellent WELS rating <input type="checkbox"/>			
(a)	Basin taps and mixers	<input type="checkbox"/>	
(b)	Flushing cisterns	<input type="checkbox"/>	
(c)	Shower taps, mixers or showerheads	<input type="checkbox"/>	
(d)	Sink/Bib taps and mixers	<input type="checkbox"/>	
(e)	Urinals and urinal flush valve	<input type="checkbox"/>	
<i>Green Mark Points : 2 points for at least 2 fitting types; 4 points for at least 3 fitting types; 6 points for all fitting types; Max 6 points</i>			
ST 2-2 Water Usage Monitoring		1.5	
(a)	Provision of sub-meters to monitor water usage from tenants (retail shops) (0.5 point).	<input type="checkbox"/>	
(b)	Provision of sub-meters to monitor water usage of public toilets (0.5 point).	<input type="checkbox"/>	
(c)	Provision of sub-meters to monitor water usage for cooling towers (0.5 point).	<input type="checkbox"/>	
ST 2-3 Water Consumption of Cooling Towers		3.5	
(a)	Use of cooling tower water treatment system which can achieve 7 or better cycles of concentration at acceptable water quality (1 point)	<input type="checkbox"/>	
(b)	Provision of effective drift eliminator with minimum efficiency of 0.002% (2 points)	<input type="checkbox"/>	
(c)	Provision of alternative water sources like NEWater or recycled AHU condensate, etc, (0.5 point)	<input type="checkbox"/>	
Category Score for Part 2 - Water Efficiency :		11.0	

Project Reference No.: _____		GM e-Filing No.: _____																
(II) Other Green Requirements																		
Part 3 : Environmental Protection		Max Points Allocated	Points Scored															
ST 3-1 Sustainable Construction		9.0																
<p>(a) Use of Sustainable and Recycled Materials (<i>Max 7 points</i>) [Green Box]</p> <p>(i) Green Cements with approved industrial by-products [Yellow Box] (that is Ground Granulated Blastfurnace Slag (GGBS), silica fume, fly ash) to replace Ordinary Portland Cement (OPC) by at least 10% by mass for the concrete production of structural works. (<i>1 point</i>)</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 non-load bearing partition walls [Green Box]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Extent of coverage (based on number of applicable rooms)</th> <th style="width: 33%;">RCA replace coarse aggregates (<i>Max 2 points</i>)</th> <th style="width: 33%;">WCS replace fine aggregates (<i>Max 2 points</i>)</th> </tr> </thead> <tbody> <tr> <td>At least 80% of rooms (<i>2 points</i>)</td> <td style="background-color: yellow;"></td> <td style="background-color: yellow;"></td> </tr> <tr> <td>At least 50% of rooms (<i>1 point</i>)</td> <td style="background-color: yellow;"></td> <td style="background-color: yellow;"></td> </tr> </tbody> </table> <p>(iii) Recycled Concrete Aggregates (RCA), incinerated bottom ash or reclaimed asphalt pavement for road construction (<i>1 point</i>) [Yellow Box]</p> <p>(iv) Use of eco-concrete [Green Box]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 50%;">Road kerbs</td> <td style="width: 50%; background-color: yellow;"></td> </tr> <tr> <td>At-grade foot paths</td> <td style="background-color: yellow;"></td> </tr> <tr> <td>Road side drains</td> <td style="background-color: yellow;"></td> </tr> </tbody> </table> <p><i>Green Mark Points : 0.5 point each; Max 1 point</i> <i>Extent of coverage : at least 90% of applicable areas.</i></p> <p>(b) Use of sustainable alternatives which can be fabricated off-site with minimal concrete usages and wet trade for the construction of entrance structure (<i>1 point</i>) [Yellow Box]</p> <p>(c) Reuse of suitable excavated soil in other sites (<i>1 point</i>) [Yellow Box]</p>		Extent of coverage (based on number of applicable rooms)	RCA replace coarse aggregates (<i>Max 2 points</i>)	WCS replace fine aggregates (<i>Max 2 points</i>)	At least 80% of rooms (<i>2 points</i>)			At least 50% of rooms (<i>1 point</i>)			Road kerbs		At-grade foot paths		Road side drains			
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ST 3-2 Sustainable Products		4.0																
<p>Use of environmental friendly products that are certified by approved local certification body and are applicable for non-structural building components and construction [Green Box]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <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 style="background-color: lightgreen;"></td> <td style="background-color: lightgreen;"></td> <td style="background-color: lightgreen;"></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;</i> <i>Points scored = Σ(A x B); Max 4 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		
Environmental friendly products	Weightage based on extent of environmental friendliness																	
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Project Reference No.: _____		GM e-Filing No.: _____														
(II) Other Green Requirements																
Part 3 : Environmental Protection cont'd		Max Points Allocated	Points Scored													
ST 3-3 Greenery Provision		3.0														
(a) Green Plot Ratio (GnPR) 																
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Total Leaf Area in m² (A)</td> <td style="background-color: #fff2cc;"> </td> </tr> <tr> <td>Site Area in m² (B)</td> <td style="background-color: #fff2cc;"> </td> </tr> <tr> <td>GnPR (C = A / B)</td> <td style="background-color: #d9ead3;"> </td> </tr> </table>				Total Leaf Area in m ² (A)		Site Area in m ² (B)		GnPR (C = A / B)								
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="5">Green Mark Points (Max 2 points)</th> </tr> <tr> <th>GnPR</th> <th>0.5 to <1.0</th> <th>1.0 to <1.5</th> <th>1.5 to <2.0</th> <th>≥2.0</th> </tr> <tr> <td>Points Allocated</td> <td>0.5</td> <td>1.0</td> <td>1.5</td> <td>2.0</td> </tr> </table>		Green Mark Points (Max 2 points)					GnPR	0.5 to <1.0	1.0 to <1.5	1.5 to <2.0	≥2.0	Points Allocated	0.5	1.0	1.5	2.0
Green Mark Points (Max 2 points)																
GnPR	0.5 to <1.0	1.0 to <1.5	1.5 to <2.0	≥2.0												
Points Allocated	0.5	1.0	1.5	2.0												
(b) Use of compost recycled from horticulture waste (1 point) 																
ST 3-4 Site Selection		4.0														
Proper site planning and selection which minimize land uptake 																
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">Green Mark Points (Max 4 points)</th> </tr> <tr> <th>Land Uptake</th> <th>Points Allocated</th> </tr> <tr> <td>At least 90% under road reserve</td> <td>4 points</td> </tr> <tr> <td>At least 70% under road reserve or green field sites (with allowance for development above)</td> <td>3 points</td> </tr> <tr> <td>At least 50% under road reserve or green field sites (with allowance for development above)</td> <td>2 points</td> </tr> <tr> <td>At least 70% above central median or along road reserve</td> <td>1 point</td> </tr> </table>				Green Mark Points (Max 4 points)		Land Uptake	Points Allocated	At least 90% under road reserve	4 points	At least 70% under road reserve or green field sites (with allowance for development above)	3 points	At least 50% under road reserve or green field sites (with allowance for development above)	2 points	At least 70% above central median or along road reserve	1 point	
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ST 3-5 Environmental Management Practice		4.0														
(a) Implement effective environmental management programmes including monitoring and setting targets to minimise energy use, water use and construction waste (1 point) 																
(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). 																
(c) Firms ISO 14000 certified (0.25 point for each firm) 																
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>(i) Developer</td> <td style="background-color: #fff2cc;"> </td> </tr> <tr> <td>(ii) Main builder</td> <td style="background-color: #fff2cc;"> </td> </tr> <tr> <td>(iii) M&E consultant</td> <td style="background-color: #fff2cc;"> </td> </tr> <tr> <td>(iv) Architect</td> <td style="background-color: #fff2cc;"> </td> </tr> </table>				(i) Developer		(ii) Main builder		(iii) M&E consultant		(iv) Architect						
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(iv) Architect																
(d) Project team comprises Green Mark Manager (GMM) and Green Mark Facilities Manager (GMFM) and Mark Professional (GMP) (Max 1 point) 																
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>(i) Certified GMM (0.5 point)</td> <td style="background-color: #fff2cc;"> </td> </tr> <tr> <td>(ii) Certified GMFM (0.5 point)</td> <td style="background-color: #fff2cc;"> </td> </tr> <tr> <td>(iii) Certified GMP (1 point)</td> <td style="background-color: #fff2cc;"> </td> </tr> </table>		(i) Certified GMM (0.5 point)		(ii) Certified GMFM (0.5 point)		(iii) Certified GMP (1 point)										
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Project Reference No.: _____		GM e-Filing No.: _____																
(II) Other Green Requirements																		
Part 3 : Environmental Protection cont'd		Max Points Allocated	Points Scored															
ST 3-6 Public Transport Accessibility		15.0																
(a)	Covered links to bus stops (2 points) - at least 3 or more covered links (2 points) - at least 2 covered links (1 point) - at least 1 covered link (0.5 point)	<input type="text"/>																
(b)	Covered links to taxi-stand/ passenger drop-off point (1 point) - at least 2 or more covered links (1 point) - at least 1 covered link (0.5 point)	<input type="text"/>																
(c)	Covered links to bus interchanges/other transit stations (3 points)	<input type="text"/>																
(d)	Connectivity to neighbouring developments (Max 6 points)	<input type="text"/>																
(i)	Connections to be made available via underground or covered links - at least 2 or more connections to each development (1.5 points) - at least 1 connection to each development (1 point)	<input type="text"/>																
(ii)	Knock-out panels for future connection No. of knock-out panels = <input type="text"/> (1 point for each knock-out panel)	<input type="text"/>																
(iii)	Additional entrance No. of additional entrance = <input type="text"/> (1 point for each additional entrance)	<input type="text"/>																
(e)	Provision of bicycle parking lots (2 points)	<input type="text"/>																
<table border="1"> <thead> <tr> <th colspan="5">Green Mark Points</th> </tr> <tr> <th>Bicycle parking lots</th> <th>20 to 39 lots</th> <th>40 to 69 lots</th> <th>70 to 99 lots</th> <th>≥ 100 lots</th> </tr> </thead> <tbody> <tr> <td>Points Allocated</td> <td>0.5</td> <td>1.0</td> <td>1.5</td> <td>2.0</td> </tr> </tbody> </table>				Green Mark Points					Bicycle parking lots	20 to 39 lots	40 to 69 lots	70 to 99 lots	≥ 100 lots	Points Allocated	0.5	1.0	1.5	2.0
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(f)	Provision of sheltered bicycle parking lots (1 point)	<input type="text"/>																
<table border="1"> <thead> <tr> <th colspan="3">Green Mark Points</th> </tr> <tr> <th>Percentage of sheltered bicycle parking lots over total no. of bicycle parking lots provided</th> <th>≥ 50%</th> <th>100 %</th> </tr> </thead> <tbody> <tr> <td>Points Allocated</td> <td>0.5</td> <td>1.0</td> </tr> </tbody> </table>				Green Mark Points			Percentage of sheltered bicycle parking lots over total no. of bicycle parking lots provided	≥ 50%	100 %	Points Allocated	0.5	1.0						
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Points Allocated	0.5	1.0																
ST 3-7 Refrigerants		2.0																
(a)	Refrigerants with ozone depletion potential (ODP) of zero or with global warming potential (GWP) of less than 100 (1 point).	<input type="text"/>																
(b)	Use of refrigerant leak detection system at critical areas of plant rooms containing chillers and other equipments with refrigerants (1 point)	<input type="text"/>																
Category Score for Part 3 - Environmental Protection :		41.0																

Project Reference No.: _____		GM e-Filing No.: _____	
(II) Other Green Requirements			
Part 4 : Indoor Environmental Quality		Max Points Allocated	Points Scored
ST 4-1 Thermal Comfort		1.0	
<p>Air-conditioning system is designed to allow cooling load variation due to fluctuations in ambient air temperature to ensure consistent indoor conditions for thermal comfort.</p> <p>Indoor operative temperature between 24 to 26° C</p> <p>Relative Humidity < 65%.</p>			
ST 4-2 Indoor Air Pollutants		2.0	
(a)	Use of low volatile organic compounds (VOC) paints certified by approved local certification body for at least 90% of the total applicable internal wall areas (1 point).	<input type="checkbox"/>	
(b)	Use of environmentally friendly adhesives certified by approved local certification body for at least 90% of the applicable areas (1 point)	<input type="checkbox"/>	
ST 4-3 Indoor Air Quality (IAQ) Management		2.0	
(a)	Provision of filtration media and differential pressure monitoring equipment in Air Handling Units (AHUs) in accordance with SS554 (1 point)	<input type="checkbox"/>	
(b)	Implementation of effective IAQ management plan to ensure that building ventilation systems are clean and free from residuals left over from construction activities (including internal surfaces condition testing). (1 point)	<input type="checkbox"/>	
Category Score for Part 4 - Indoor Environmental Quality :		5.0	

Project Reference No.: _____		GM e-Filing No.: _____	
(II) Other Green Requirements			
Part 5 : Other Green Features		Max Points Allocated	Points Scored
ST 5-1	Green Features and Innovations	6.0	
<p>(a) The following green features are deemed acceptable :</p> <p><u>(1) Water Efficiency</u></p> <p>(i) Use of grey water recycling system (2 points) <input type="checkbox"/></p> <p>(ii) Provision of system to recycle surface runoff from vertical green wall and sky gardens (1 point) - at least 25% of the green areas (1 point) - less than 25% of the green areas (0.5 point) <input type="checkbox"/></p> <p><u>(2) Environmental Protection</u></p> <p>(i) Protection of existing greenery by using construction methods that have minimal site disturbance such as bored/mined construction or equivalent (2 points) <input type="checkbox"/></p> <p>(ii) Provision of green roof and roof top garden (1 point) - more than 50% of the roof areas (1 point) - at least 25% of the roof areas (0.5 point) <input type="checkbox"/></p> <p>(iii) Provision of vertical greening (1 point) - more than 50% of the applicable wall areas (1 point) - at least 25% of the applicable wall areas (0.5 point) <input type="checkbox"/></p> <p>(iv) Use of non-chemical termite treatment system such as termite baiting system, anti-termite mesh (0.5 point) <input type="checkbox"/></p> <p><u>(3) Indoor Air Quality</u></p> <p>(i) Use of ultraviolet light-C band (UV) emitter at all AHUs (air handling units) to improve indoor air quality (0.5 point) <input type="checkbox"/></p> <p><u>(4) Others</u></p> <p>(i) Use of siphonic rainwater discharge system at roof (0.5 point) <input type="checkbox"/></p>			

Project Reference No.: _____		GM e-Filing No.: _____	
(II) Other Green Requirements			
Part 5 : Other Green Features		Max Points Allocated	Points Scored
ST 5-1 Green Features and Innovations cont'd			
(b) Items that are not listed above but with clearance from BCA □ (i) _____ □ (ii) _____ □ (iii) _____ □ (iv) _____ □ (v) _____ □ (iv) _____ □ (vii) _____ □ (viii) _____ □ (ix) _____ □ (x) _____ □ _____			
<i>Green Mark Points : 2 points for high impact, 1 point for medium impact and 0.5 point for low impact; Max 6 points for ST 5-1</i>			
Category Score for Part 5 – Other Green Features :		6.0	
Category Score for Part 2 to Part 5 (Min 20 points) :		63.0	
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)} :		120.0	

Project Reference No.: _____ GM e-Filing No.: _____

ADDITIONAL INFORMATION

Summary of Sustainable Products used in ST 3-2

Environmental friendly products	Weightage based on extent of environmental friendliness		
	Good	Very Good	Excellent
Points (A)			
Weightage (B)	0.5	1.5	2.0

List of sustainable products

S/No.	Description of environmental friendly products	Extent of coverage	Impact (1.0 point or 0.5 point)	Weightage (Good or Very Good or Excellent)

Explanatory Notes :

Forms BPD_GM02and BPD_GM02_Appendix2-NRB/ST

On completion of building works that are subject to the Building Control (Environmental Sustainability) Regulation 2008, the Form BPD_GM02 must be completed, accompanied with 1 set of Form 1 set of Form BPD_GM02_Appendix 2-NRB/ST where applicable. These forms are to be generated using the **Green Mark (GM) e-Filing System** accessible from BCA website and submitted before making an application for temporary work permit (TOP) or certificate of statutory completion (CSC) if TOP is not applied for.