



BCA GREEN MARK

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# **BCA Green Mark for Office Interior Version 1.0**

## Point Allocations - BCA Green Mark for Office Interior

Category		Point Allocations		
<b>(I) Energy Related Requirements</b>				
Minimum 25 points	<b>Part 1 : Energy Efficiency</b>			
	1-1 Energy Efficiency	4		
	1-2 Electricity Usage	2		
	1-3 Air-conditioning	6		
	1-4 Lighting	16		
	1-5 Office Equipment	10		
	1-6 Energy Efficient Features	7		
	<b>Category Score for Part 1 – Energy Efficiency</b>		<b>45</b>	
<b>(II) Other Green Requirements</b>				
Maximum Cap of 60 points	Minimum 25 points	<b>Part 2 : Water Efficiency</b>		
		2-1 Water Efficient Fittings	7	
		2-2 Water Usage	2	
		2-3 Water Efficiency Improvement Plan	1	
		<b>Category Score for Part 2 – Water Efficiency</b>		<b>10</b>
		<b>Part 3 : Sustainable Management &amp; Operation</b>		
		3-1 Sustainable Office Design	8	
		3-2 Sustainable Material Selection	5	
		3-3 Office Operation	3	
		3-4 Post Occupancy Evaluation	3	
		3-5 Waste Management	5	
		3-6 Greenery	4	
		3-7 Public Transport Accessibility	2	
		<b>Category Score for Part 3 – Sustainable Management &amp; Operation</b>		<b>30</b>
		<b>Part 4 : Indoor Environmental Quality</b>		
		4-1 IAQ Performance	8	
		4-2 Indoor Air Pollutants	5	
		4-3 Lighting Quality	6	
		4-4 Thermal Comfort	4	
		4-5 Internal Noise Level	2	
<b>Category Score for Part 4 – Indoor Environmental Quality</b>		<b>25</b>		
<b>Part 5 : Other Green Features</b>				
5-1 Green Features & Innovations	5			
<b>Category Score for Part 5 – Other Green Features</b>		<b>5</b>		
<b>Total Points Allocated :</b>		<b>115</b>		
<b>Green Mark Score (Max) :</b>		<b>100 points</b>		

**BCA Green Mark Award Rating**

<b>Green Mark Points</b>	<b>Green Mark Rating</b>
95 and above	Green Mark Platinum
85 to < 95	Green Mark Gold <sup>Plus</sup>
75 to < 85	Green Mark Gold
50 to < 75	Green Mark Certified

**Elective Requirements**

Part 1 - Energy Efficiency	Green Mark Points
<p><b><u>1-1 Energy Efficiency</u></b></p> <p>(a) Encourage selection of energy efficient base building</p> <p>Building is awarded NEA’s Energy Smart Label or building demonstrate 30% energy savings over last three years</p> <p>(b) Encourage office with energy efficiency improvement plan</p> <p>Setting target to improve office energy performance.</p> <p>To show intent, measures and implementation strategies of energy efficiency improvement plans over the next three years.</p> <p>Committed energy savings accrued from proposed measures should be quantified.</p>	<p>2 points</p> <p>2 points</p>
<p><b><u>1-2 Electricity Usage</u></b></p> <p>Encourage the design of system that monitor and manage electricity consumption</p> <p>Provision of sub-meter to monitor electricity use of each floor.</p> <p>Monitoring of electricity consumption.</p>	<p>1 point</p> <p>1 point</p>
<p><b><u>1-3 Air-conditioning</u></b></p> <p>Encourage the use of better efficient air-conditioning to minimize energy consumption</p> <p>(a) A/C system efficiency</p> <p>Use of centralized air-conditioning system which meet the efficiency requirement of the air-conditioning system stated in SS 530</p> <p>(b) Zoning and controls</p> <p>Encourage the use of air-conditioning design practices that offer greater flexibility and making it earlier to serve area with different usage efficiently, such as</p> <p>(i) Zoning of air-conditioning system to serve areas with different usage/ occupancies needs</p>	<p>1 point</p> <p>Up to 5 points</p>

Part 1 - Energy Efficiency	Green Mark Points
<p>(ii) Scheduling control to switch on and/or off the air-conditioning with some localized override control where air-conditioning is needed beyond the scheduled period</p> <p>(iii) Meeting rooms, pantry, etc with specialty occupancies having control capable of sensing space use and respond to space demand</p>	
<p><b>1-4 Lighting</b></p> <p>Encourage the use of better efficient lighting to minimise energy consumption from lighting usage while maintaining proper lighting level.</p> <p>(a) Lighting power budget</p> <p>Baseline = Maximum lighting power budget stated in SS530</p> <p>(b) Lighting controls</p> <p>Encourage the use of lighting control circuits to minimize energy usage, such as provision of the following control strategies</p> <p>(i) Zoning of lighting for different usage/ location</p> <p>(ii) Scheduling control to switch on and/or off the lightings with some localized override control where lighting is needed beyond the scheduled period</p> <p>(iii) Use of dimmers such as lighting can be dimmed during lunch hours</p> <p>(iv) Minimize use of general lighting level by using task lighting</p>	<p>0.3 point for every percentage improvement above the baseline</p> <p>Points awarded = 0.3 x (% improvement)</p> <p>(up to 12 points)</p> <p>Up to 4 points</p>

<b>Part 1 - Energy Efficiency</b>	<b>Green Mark Points</b>
<p><b><u>1-5 Office Equipment</u></b></p> <p>Encourage the use of energy efficient office equipment to save energy.</p> <p>Use of energy efficient office equipment such as</p> <ul style="list-style-type: none"> <li>• Computer</li> <li>• Monitor</li> <li>• Fax machine</li> <li>• Printer</li> <li>• Photocopier</li> </ul>	<p>Points awarded based on the number and energy efficiency rating of the equipment use</p> <p>(up to 10 points)</p>
<p><b><u>1-6 Energy Efficient Features</u></b></p> <p>Encourage the use of energy efficient features which are innovative and/or have positive environmental impact.</p> <p>Examples :</p> <ul style="list-style-type: none"> <li>■ Use of power management features for office equipment used</li> <li>■ Use of motion sensors for areas with unfrequent usage</li> </ul>	<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><b>PART 1 – ENERGY EFFICIENCY CATEGORY SCORE :</b></p>	

<b>Part 2 – Water Efficiency</b>	<b>Green Mark Points</b>
<p><b><u>2-1 Water Efficient Fittings</u></b></p> <p>Encourage the use of water efficient fittings covered under the Water Efficiency Labelling Scheme (WELS) or adopt equivalent water efficient flowrates for water fittings</p> <p>(a) Basin Taps and Mixers                      (b) Flushing Cistern                      (c) Showers                      (d) Sink/Bib Taps and Mixers                      (e) All other water fittings</p>	<p>Rating based on Water Efficiency Labelling Scheme (WELS)</p> <p>Good – 2 points                      Very Good – 4 points                      Excellent – 7 points</p> <p>Points awarded based on the number and water efficiency rating of the fitting type used</p>
<p><b><u>2-2 Water Usage</u></b></p> <p>Encourage the design of system that monitor and manage water consumption</p> <p>Provision of meter to monitor the water usage of each floor</p> <p>Monitor of water consumption</p>	<p>1 point</p> <p>1 point</p>
<p><b><u>2-3 Water Efficiency Improvement Plans</u></b></p> <p>Targets to improve office water performance should be set. To show intent, measures and implementation strategies of water efficiency improvement plans over the next three years.</p> <p>Committed water savings accrued from proposed measures should be quantified.</p>	<p>1 point</p>
<p><b>PART 2 – WATER EFFICIENCY                      CATEGORY SCORE :</b></p>	

Part 3 – Sustainable Management & Operation	Green Mark Points
<p><b><u>3-1 Sustainable Office Design</u></b></p> <p>Encourage the selection of more sustainable base building and the adoption of office designs and materials that is environmentally friendly and sustainable.</p> <p>(a) Building is awarded with Green Mark gold or higher award.</p> <p>(b) Office renovation conserve at least 50% (by area) of the existing finishing for walls, flooring and ceilings</p> <p>(c) Office layout design that encourage open, flexible and maximize space usage such as</p> <ul style="list-style-type: none"> <li>• Provision of open and flexible layout with minimum enclosed space</li> <li>• Provision of space saver, mobile station, etc</li> </ul>	<p>Green Mark gold award - 1 point                      Green Mark gold<sup>PLUS</sup> award - 2 points                      Green Mark platinum award - 3 points</p> <p>(up to 3 points)</p> <p>2 points</p> <p>3 points</p>
<p><b><u>3-2 Sustainable Material Selection</u></b></p> <p>Encourage the adoption of office materials that are environmentally friendly and sustainable.</p> <p>(a) Maintain at least 50% (by volume) of the existing furniture</p> <p>(b) Use of sustainable products in renovation such as :</p> <ul style="list-style-type: none"> <li>• Environmental friendly products that are certified by approved local certification body or equivalent</li> <li>• Products with at least 30% recycled content by weight or volume</li> </ul>	<p>2 points</p> <p>1 point for high impact item                      0.5 point for low impact item                      (Up to 3 points)</p>
<p><b><u>3-3 Office Operation</u></b></p> <p>Commitment from tenant – environmental policy</p> <p>A green guide for the office occupants should be disseminated. Best practices to reduce energy use, water use and maintain a good indoor environment should be documented in this green guide. To demonstrate evidences of office occupant involvement in environmental sustainability.</p>	<p>1 point</p> <p>2 points</p>



<b>Part 3 – Sustainable Management &amp; Operation</b>	<b>Green Mark Points</b>
<p><b><u>3-4 Post Occupancy Evaluation</u></b></p> <p>Conduct yearly post occupancy evaluation to assess occupant’s satisfaction with the indoor environmental conditions.</p> <p>List of corrective actions taken following the post occupancy evaluation.</p>	<p>2 points</p> <p>1 point</p>
<p><b><u>3-5 Waste Management</u></b></p> <p>Encourage recycling facilities within office to reduce waste going to landfill.</p> <p>Provision of recycling facilities (for recycling glass, paper, metal as well as one for non-recyclable waste)</p> <ul style="list-style-type: none"> <li>(i) At a central location</li> <li>(ii) At every floor or strategic locations to encourage recycling</li> </ul> <p>Waste collecting and monitoring</p> <p>Waste management improvement plan</p>	<p>1 point</p> <p>2 points</p> <p>1 point</p> <p>1 point</p>
<p><b><u>3-6 Greenery</u></b></p> <p>Encourage greater use of greenery to create a more conducive office environment</p> <ul style="list-style-type: none"> <li>(a) Sky garden, roof garden or common recreation areas for staff with greenery</li> <li>(b) Planter or potted plants</li> </ul>	<p>Up to 2 points</p> <p>Extent of Coverage : At least 1% of the office area 1 point</p> <p>Extent of Coverage : At least 2% of the office area 2 points</p>
<p><b><u>3-7 Public Transport Accessibility</u></b></p> <p>Promote the use of public transport or bicycles to reduce pollution from individual car use.</p> <ul style="list-style-type: none"> <li>(a) Good access to nearest MRT/LRT or bus stops.</li> <li>(b) Adequate bicycles parking lots.</li> </ul>	<p>1 point</p> <p>1 point</p>
<p align="center"><b>PART 3 – ENVIRONMENTAL PROTECTION</b></p> <p align="center"><b>CATEGORY SCORE :</b></p>	

Part 4 – Indoor Environmental Quality	Green Mark Points
<p><b><u>4-1 IAQ Performance</u></b></p> <p>Encourage and recognize good indoor air quality (IAQ) to ensure the comfort and wellbeing of office occupants</p> <p>(a) Conduct IAQ audit once every three years and ensure that the following recommended IAQ parameter are met</p> <p><i>Note : IAQ parameter recommended by NEA’s Guidelines for Good Indoor Air Quality in Office Premises or Singapore Standard Code of Practice for “Indoor Air Quality for Air-conditioned Buildings” ( to take precedence over the NEA’s guidelines once the Singapore Standard is published)</i></p> <p>(b) Develop an active IAQ management programme</p> <p>(c) CO2 monitoring to ensure delivery of sufficient/ minimum outside air requirements</p>	<p>5 points</p> <p>1 point</p> <p>2 points</p>
<p><b><u>4-2 Indoor Air Pollutants</u></b></p> <p>Minimise airborne contaminants, mainly from inside sources to promote a healthy indoor environment.</p> <p>Use and purchase of sustainable and environmental- friendly products such as</p> <ul style="list-style-type: none"> <li>• cleaning products recognised by approved local certification body or equivalent</li> <li>• environmental -friendly janitorial paper products</li> <li>• Office stationary</li> </ul> <p>Setting of sustainable and environmental-friendly procurement and purchasing policy</p>	<p>Up to 4 points</p> <p>1 point</p>
<p><b><u>4-3 Lighting Quality</u></b></p> <p>To encourage good workplace lighting quality to promote productivity and comfort of occupants</p> <p>(a) Lighting level.</p> <p>(b) Controllability of lighting system</p>	<p>2 points</p> <p>Extent of Coverage : At least 90% of occupants able to adjust lighting control to suit their task needs and preference</p> <p>2 point</p>

<b>Part 4 – Indoor Environmental Quality</b>	<b>Green Mark Points</b>
<p>(c) High frequency ballasts                      Improve workplace lighting quality by avoiding low frequency flicker associated with fluorescent lighting with the use of high frequency ballast in the fluorescent luminaries</p>	<p>Extent of Coverage : At least 90% of all applicable areas that are served by fluorescent luminaries                      2 points</p>
<p><b><u>4-4 Thermal Comfort</u></b>                      Ensure thermal comfort of office occupants</p> <p>(a) Comfort level                      Comply with CP 13</p> <p>(b) Controllability of temperature</p>	<p>2 points</p> <p>2 points</p>
<p><b><u>4-5 Internal Noise Level</u></b>                      Internal noise level is maintained with good ambient sound levels as recommended in SS CP 13.</p>	<p>2 points</p>
<p><b>PART 4 – INDOOR ENVIRONMENTAL QUALITY</b>  <b>CATEGORY SCORE :</b></p>	

<b>Part 5 – Other Green Features</b>	<b>Green Mark Points</b>
<p><b><u>5-1 Green Features and Innovations</u></b></p> <p>Encourage the use of other green features which are innovative and/or have positive environmental impact.</p> <p>Examples :</p> <ul style="list-style-type: none"> <li>■ Paper chute collection system</li> <li>■ Green wall in atrium’s wall</li> <li>■ etc</li> </ul>	<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 5 points)</p>
<p><b>PART 5 – OTHER GREEN FEATURES CATEGORY SCORE :</b></p>	

### Green Mark Score

$$\text{Green Mark Score} = \sum \text{Category Score [ (Part 1 – Energy Efficiency) + (Part 2 – Water Efficiency) + (Part 3 – Sustainable Management & Operation)+ (Part 4 – Indoor Environmental Quality) + (Part 5 – Other Green Features)]}$$