

GREEN MARK CRITERIA FOR EXISTING BUILDINGS (VERSION 1)

Note: This old criteria is for information only.

Participants of BCA-CDL Green Sparks Competition should refer to Version 2.1 for their proposals.

	Points allocated
Part 1: Energy Efficiency	
1. Energy Efficiency Index	7
2. Continual Improvement for Energy Efficiency	7
3. Electrical Sub-metering	2
4. Energy Efficient Systems & Features	6
5. Roof Top Gardens & Landscaping	3
Sub-total	25
Part 2: Water Efficiency	
1. Continual Improvement for Water Efficiency	6
2. Water Efficient Fittings	6
3. Water Efficient Irrigation and Landscaping	3
Sub-total	15
Part 3: Building Management & Operation	
1. Building Maintenance	3
2. Environmental Management System	8
3. Building Maintenance and Operation Guidelines	4
4. Preservation & Enhancement of Landscaping	3
5. Public Transport Accessibility	1
6. Recycling	4
7. Occupant Health	2
Sub-total	25
Part 4: Indoor Environmental Quality and Environmental Protection	
1. Effective Ventilation	2
2. High Frequency Ballasts	2
3. Luminance Level	2
4. Thermal Comfort	2
5. Noise Level	2
6. Indoor Air Quality Audit	2
7. Refrigerants	3
Sub-total	15
Part 5: Innovation	
1. Innovation	20
Sub-total	20
Total	100

Green Mark Award Rating

Green Mark Points	Green Mark Rating
85 and above	Green Mark Platinum
80 to <85	Green Mark Gold ^{Plus}
70 to <80	Green Mark Gold
55 to <70	Green Mark Award

GREEN MARK FOR EXISTING BUILDINGS

Revised Green Mark Assessment Criteria

Part 1: Energy Efficiency

	Item	Areas of Assessment
1	Energy Efficiency Index	<p>To ensure that the building energy consumption is monitored and achieve a minimum level of 240 kWh/m²/yr (applicable to office buildings only).</p> <p>Up to 7 points are given for performance above industry average.</p> <ul style="list-style-type: none">▪ 1 point = 240 to 220 kWh/m²/yr▪ 2 points = 219 to 200 kWh/m²/yr▪ 3 points = 199 to 180 kWh/m²/yr▪ 4 points = 179 to 170 kWh/m²/yr▪ 5 points = 169 to 160 kWh/m²/yr▪ 6 points = 159 to 150 kWh/m²/yr▪ 7 points = < 150 kWh/m²/yr <p>This performance requirement is applicable for office buildings only. For other types of buildings, energy consumption monitoring should be conducted.</p>
2	Continual Improvement for Energy Efficiency	<p>Up to 2 points are given for conducting monthly energy monitoring of electricity use by the main building services equipment such as chillers, air handling unit, etc.</p> <p>Up to 2 points are given for establishing energy efficiency targets.</p> <p>Up to 3 points are given for establishing continual improvement plans and actions.</p>
3	Electrical Sub-metering	<p>Up to 2 points are given if sub-meters are used to monitor energy consumption of key building services and energy usage of end users/ tenants.</p>

4	Energy Efficient Systems & Features	<p>Maximum of 6 points are given where energy efficient features are used. For example:</p> <ul style="list-style-type: none"> ▪ Energy efficient lightings ▪ Energy efficient air-conditioning systems ▪ Refrigerators (residential) ▪ Energy efficient lifts, escalators ▪ Daylighting ▪ Natural Ventilation <p>1 point is given for each feature if partial (at least 25%) impact & usage and additional 1 point for extensive (at least 75%) impact & usage</p>
5	Roof Top Gardens & Landscaping	<p>Up to 3 points are given for provision and proper maintenance of landscaping, rooftop gardens or sky terraces in the building.</p>

Part 2: Water Efficiency

	Item	Areas of Assessment
1	Continual Improvement for Water Efficiency	Up to 6 points are given for: <ul style="list-style-type: none">▪ Conduct monthly water usage monitoring in common areas (toilets) and major services equipment such as chillers, air handling unit, etc.▪ Set water conservation targets and quantifies savings.▪ Establish water conservation improvement plans.
2	Water Efficient Fittings	Up to 6 points are given for implementing and maintaining water efficiency fittings. For example: <ul style="list-style-type: none">▪ Automatic water taps provided in all toilets and pantry areas▪ Automatic flushing system provided in all toilets▪ Water efficient WCs
3	Water Efficient Irrigation and Landscaping	Up to 3 points are given if water requirement for landscape irrigation is reduced or the use of recycled / reclaimed water e.g. rainwater, NEWater etc. If the maintenance of landscape is out-sourced, there should be measures to ensure the contractor practice environmental and water conservation measures.

Part 3: Building Management & Operation

	Item	Areas of Assessment
1	Building Maintenance	<p>Carry out an assessment based on CONQUAS standards for existing building common areas. The score must achieve at least 70 points.</p> <p>70-75 score: 1 point 76-80 score: 2 points Above 80 score: 3 points</p>
2	Environmental Management System	<p>Up to 2 points are given if an environmental policy for the building is established and is made known to tenants and all interested parties</p> <p>Up to 3 points are given if implementing environmental management system for building management and operations plan which meets ISO 14000 requirements</p> <p>Up to 2 points are given if conducting occupant satisfaction survey (2 points). Additional 1 point is given if building owner take appropriate corrective actions on occupant feedback / complaints</p>
3	Building Maintenance & Operation Guidelines	<p>Up to 2 points are given for provision of a guide including information relevant for the building users, occupants and tenants. The guide shall cover: energy & environmental strategy, monitoring & targets, building services overview, transport facilities, materials & waste policy and guidelines for refurbishment and renovations</p> <p>Additional 2 points are given for regular monitoring and guidance on tenant practices.</p>
4	Preservation & Enhancement of Landscaping	<p>Up to 2 points are given for maintaining existing landscape and plants and enhancing the site ecological value.</p> <p>1 point is given for the use of compost recycled from horticulture waste.</p>
5	Public Transport Accessibility	<p>1 point is given if developer provides access to MRT/LRT or bus stop e.g. through shuttle services</p>

6	Recycling	Up to 4 points are given for establishing/maintaining building occupant waste reduction programme addressing the separation, collection and storage of materials for recycling.
7	Occupant Health	<p>1 point is given for proper refuse collection and disposal, and proper cleaning and disinfection of toilets and common facilities. (Pneumatic systems can be given additional points under the innovation category)</p> <p>1 point is given for establishing SOPs and prevention measures for infectious diseases e.g. SARS.</p>

Part 4: Indoor Environmental Quality and Environmental Protection

	Item	Areas of Assessment
1	Effective Ventilation	1 point is given if a carbon dioxide monitoring system is provided that facilitates continuous monitoring and adjustment of outside air ventilation. 1 point is given for CO monitoring in carpark areas.
2	High Frequency Ballasts	2 points are given if high frequency ballasts are installed in fluorescent luminaries over a minimum of 95% of GFA.
3	Luminance Level	2 points are given if building lighting is maintained at luminance level as stated in CP 38 for various types of occupancy.
4	Thermal Comfort	Up to 2 points are given if building HVAC system is designed to allow for cooling load variations due to fluctuations in ambient air temperature to ensure consistent indoor conditions for thermal comfort. CP 13: Indoor temperature (22.5 to 25.5°C) Relative Humidity <70%
5	Noise Level	Up to 2 points are given if the building design can be shown to achieve the following internal noise levels: <ul style="list-style-type: none"> • 1 point if the design of building services contributes no more than 5dB to space noise levels. • 1 point for design sound level between 45-55 dB L_{AeqT} in general offices areas and 40-45 dB L_{AeqT} in private offices
6	Indoor Air Quality Audit	2 points are given for conducting an Indoor Air Quality (IAQ) audit at least once every two years, by competent persons
7	Refrigerants	<ul style="list-style-type: none"> • 1 point is given for refrigerants with ODP of zero OR where no refrigerants are used. • 1 point is given if a refrigerant leak detection system is specified/installed covering high-risk parts of the plant (evaporator or condenser coils can be omitted from this) OR where no refrigerants are used. • 1 point is given if provision of automatic refrigerant pump down is made to the heat exchanger (or dedicated storage tanks) with isolation valves OR where no refrigerants are used.

Part 5: Innovation

	Item	Areas of Assessment
1	Innovation	<p>Up to 20 points are given for innovations adopted by the designers, contractors and developers against the following criteria:</p> <ul style="list-style-type: none">▪ Not specified in this Green Mark criteria listing▪ Positive environmental impact <p>2 points for high impact item 0.5 to 1 point for low to medium impact item</p> <p>Examples:</p> <ul style="list-style-type: none">▪ Renewable energy▪ Thermal energy storage cooling▪ Fuel cell▪ Pneumatic waste collection system▪ Efficient construction methods▪ Cool paints▪ Heat recovery devices▪ Self cleaning façade system