

MEDIA RELEASE

BCA LAUNCHES GREEN MARK FOR BUILDINGS SCHEME

Announced by Mr Cedric Foo, Minister of State (National Development and Defence) in the Opening Address at the Construction & Property Prospects Seminar (organised by BCA and REDAS) on 11 January 2005

1. The Building and Construction Authority (BCA) has launched a Green Mark for Buildings Scheme (Green Mark) as a bold initiative to move Singapore's building and construction industry towards environment-friendly buildings and help strengthen Singapore's position as a global city committed to balancing its development with care for the environment.
2. The introduction of the Green Mark is timely in view of the growing global concern on sustainable development and increasing interest in green buildings. Green Mark provides a platform for the construction industry to demonstrate its commitment to an environment-friendly approach in developing and building Singapore's urban landscape.
3. The Green Mark for Buildings Scheme, which is supported by the National Environment Agency, will demonstrate the building and construction industry's commitment towards sustainable development.

Objectives of the Green Mark

4. The Green Mark for Buildings Scheme has three key objectives:
 - Promote environmental sustainability in the construction industry and raise the awareness among developers, building owners and industry professionals on the environmental impact of their projects.

- Accord recognition to building owners and developers who adopt building practices that are environmentally conscious and socially responsible.
- Identify best practices in the development, design, construction, management and operation of “green” buildings. These practices have potential cost benefits and will be shared with the rest of the industry.

Benefits to Developers and Building Owners

5. Building owners and developers of green buildings will reap savings in terms of lower operating costs with less water and energy being consumed. Those living and working in green buildings will enjoy improved indoor environmental quality as well. Studies in the US indicated that energy savings of 20-50% is possible, depending on the extent of energy-efficient features used, and water savings of up to 30%. Better indoor environmental quality also raises worker productivity due to lower work absenteeism.

6. Besides these tangible benefits, the Green Mark will also recognise building owners and developers who are more socially responsible in caring for the environment.

7. Case studies were done on a few buildings in Singapore. Below are some examples of “green” features such as energy efficient lighting systems and water efficient systems (see Annexes A and B on typical features of green commercial and residential buildings):

- Nanyang Polytechnic's approach towards resource conservation and energy efficiency has resulted in cost savings of about \$2 million over five years. Environment-friendly features include effective management of air-conditioning system, innovative landscape lightings and efficient landscape watering system.

- Biopolis, part of the one-north research & innovations hub, incorporates a district cooling system to provide centralised cooling to reduce energy consumption by 10-15 % as well as to optimise the use of space. The development also features the use of solar panels, environment-friendly pneumatic waste system and use of solar-powered LED lights for its landscaping.
- Savannah Park condominium is designed with consideration for the environment. For example, it has incorporated energy efficient features such as the use of solar panels for the project's clubhouse, and pneumatic waste disposal system for a healthier environment. The developer, City Developments Limited, also practises transplanting of trees as a means for ecological conservation, and promotes recycling among residents by providing recycling facilities.

Green Mark Assessment and Rating

8. The Green Mark scheme will be applicable to both new and existing buildings. Under the Green Mark scheme, new buildings will be assessed under five key criteria – (1) Energy Efficiency, (2) Water Efficiency, (3) Site and Project Development and Management, (4) Indoor Environmental Quality and Environmental Protection, and (5) Innovation. Existing buildings will be assessed under similar criteria except that Site and Project Development and Management will be replaced with Building Management and Operations (see Annex A for more details on the criteria). These are key criteria that are commonly adopted for assessment of green buildings in the United States, United Kingdom and Australia.

9. Buildings that apply for the Green Mark will be assessed prior to the award, and thereafter, they will be assessed once every two years to maintain the Green Mark. This is to ensure that buildings continue to be well maintained and managed.

10. There will be four levels of rating – Platinum Star, Platinum, Gold and Silver – depending on how well a building met the Green Mark criteria. Buildings achieving the highest Platinum Star level are those recognised as exceptional buildings in

Singapore, which have incorporated extensive environment-friendly features. These buildings provide a model “green building” for the industry to emulate.

11. BCA will also use the Green Mark scheme as the basis for further research on the impact of green buildings, and collaborate with the industry to develop a design guide for green buildings to help developers, building owners and industry professionals to adopt environment-friendly features in building designs.

Buildings Planning for Green Mark Assessment

12. Several private sector developers and public sector agencies have indicated interest to have their buildings assessed under the Green Mark scheme. These include City Developments, Wing Tai Asia, Jurong Town Corporation, National Library Board, Nanyang Polytechnic and Alexandra Hospital. BCA will begin assessing the buildings this month, and the first Green Mark awards will be given out at the BCA Awards in May 2005.

Annexes

Annexes A and B	Typical Features in a Green Building – Commercial and Residential
Annex C	Details on the Green Mark Assessment Scheme

Issued by the Building and Construction Authority on 10 January 2005.

Annex A: Environment-Friendly Features for Commercial Buildings

Legend

- Energy Efficiency
- Water Efficiency
- Site / Project Development & Management
- Design for Good Indoor Environment Quality
- ★ Innovation



With Contributions from JTC Corporation

Annex B - Environment-Friendly Features for Condominium



- Tree Transplantation [01]
- Extensive landscape and [02] lush greenery
- Ecological pond [03]
- Recycled material for wood flooring [04]
- Recycled material for door panel [05]
- ☀ Green corner for recycling [19]
- ☀ Pneumatic waste system [20]

**SITE / PROJECT DEVELOPMENT
& MANAGEMENT**



- Energy efficient lighting [06]
- Energy efficient AC [07]
- Energy efficient heater [08]
- Dimmer to control lighting system [09]
- Natural ventilation for carpark [10]
- Sun shading device [11]
- Timer controlled lightings [12]
- ☀ Solar energy system [18]

DESIGN FOR ENERGY EFFICIENCY



- Water efficient bathroom [13]
- Filtration & reuse of water [14] for water features
- Self-closing taps for shower points [15]

DESIGN FOR WATER EFFICIENCY



- Laminated glazing for units fronting [16] expressway (for noise reduction)
- Environment-friendly refrigerant [17]

**DESIGN FOR GOOD INDOOR
ENVIRONMENTAL QUALITY &
ENVIRONMENTAL PROTECTION**



With Contributions from City Developments Limited

The Green Mark for Buildings Scheme

The Green Mark Scheme is developed by BCA as a green building rating system to evaluate the environmental impact and performance of buildings in Singapore. Green Mark is aimed at promoting sustainable development for the construction industry.

Green Mark Assessment System

The Green Mark assessment system is based on a point scoring approach. The total number of points obtained provides a benchmark of the building's environmental performance and allows comparison between buildings.

The assessment system will have criteria for two categories: New Buildings and Existing Buildings. For new buildings, developers and designers can design and construct green and sustainable buildings with consideration for energy and water efficiency, healthier indoor environments and adoption of greenery for their projects. For existing buildings, building owners or managers can review their state of their buildings and implement new measures or systems to improve their environmental performance.

Buildings will be awarded the Green Mark based on the number of points scored.

<u>Green Mark Rating</u>	<u>Points Scored</u>
Platinum Star	90 and above
Platinum	75 to <90
Gold	65 to <75
Silver	55 to <65

Details of the Green Mark assessment criteria are provided in Tables 1 & 2.

Table 1: Green Mark Assessment Criteria for New Buildings

Category	Key Criteria	Points
Design for Energy Efficiency	Green landscaping and rooftop gardens, building envelope design, energy efficiency index, electrical sub-metering, tenancy sub-metering, energy efficient features (a/c, lightings, etc), office lighting zoning.	30
Design for Water Efficiency	Water efficient building appliances & equipment, water usage and leak detection, water efficient landscaping, cooling tower water consumption	20
Site /Project Development & Management	Restoration & conservation of site ecology, CONQUAS, public transport accessibility, environmental management system, environment friendly materials, building users' guide	20
Design for Good Indoor Environmental Quality & Environmental Protection	Carbon dioxide and carbon monoxide monitoring and control, high frequency ballasts, electric lighting levels, thermal comfort, internal noise levels, Indoor air pollutants, refrigerant ozone depletion potential, refrigerant leak detection & recovery.	15
Innovation	Innovation in design	15
Total		100

Table 2: Green Mark Assessment Criteria for Existing Buildings

Category	Key Criteria	Points
Building Management & Operation	Maintenance & enhancement of site ecology, building condition assessment, environmental policy, building maintenance & operation, building users' guide, public transport accessibility, occupant recycling, public health	25
Energy Efficient Performance	Green landscaping and rooftop gardens, energy efficiency index, energy consumption monitoring, electrical sub-metering, tenancy sub-metering, energy efficient features	25
Water Efficient Performance	Water consumption measurement & verification, water efficient building appliances & equipment, water efficient landscaping	15
Indoor Environmental Quality & Environmental Protection	Carbon dioxide and carbon monoxide monitoring & control, high frequency ballasts, electric lighting levels, thermal comfort, internal noise levels, indoor air quality audits, refrigerant ozone depletion potential, refrigerant leak detection & recovery.	15
Innovation	Innovation in design, maintenance and management technologies and application	20
Total		100

Elaboration on Assessment Criteria

(a) Energy Efficiency

Energy efficiency is intended to encourage the greater use of energy efficient design and features that help to reduce the potential energy consumption of a building. Use of greenery in landscaping areas or rooftop gardens is also recognised, as these have potential impact on lowering ambient temperature. Energy efficient buildings contribute to reduction in the consumption of non-renewable energy sources and the related environmental impact such as emission of air pollutants. For existing buildings, monitoring of energy consumption and plans to improve is required.

(b) Water Efficiency

Water efficiency encourages buildings to adopt water efficient features, which can help to reduce the use of water for building operations and landscape irrigation, where applicable. The category reflects the importance of this resource in Singapore's context. For existing buildings, the monitoring of water consumption and plans for improvement are important considerations.

(c) Site/Project Development & Management (for New Buildings)

This criterion refers to the process of development and construction of new buildings. It includes site planning, environmental management at sites, use of environment-friendly materials, construction techniques and site restoration or preservation. This is to ensure an environment-friendly approach in the construction process.

(d) Building Management & Operation (for Existing Buildings)

This category covers the management and operations of a building after completion. A good management programme is required to ensure that the building is well maintained and its environment-friendly features continued to function. It also considers the role of building managers and owners in promoting environmental awareness to occupants through programmes such as occupant recycling and provision of building users' guide to encourage tenants to adopt environment-friendly practices.

(e) Good Indoor Environmental Quality & Environmental Protection

Buildings are also required to demonstrate that they are designed with consideration for indoor environmental quality and environmental protection including thermal comfort, lighting levels, internal noise level, indoor air quality checks and use of refrigerants.

(f) Innovation

Innovation points are given to encourage developers and designers to adopt state-of-the-art environmental technologies for their projects.