



BCA
ENERGY EFFICIENT BUILDING
AWARDS

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The Energy Efficient Building Awards (EEBA) was launched in October 2001 to promote energy efficiency in buildings by according recognition to building owners, architects, engineers, energy consultants who have integrated energy efficiency into their building design, operation and maintenance.

The EEBA is adjudicated by an Assessment Panel comprising experience industry representatives from the private sector, government agencies and tertiary institutions.

There are four categories of awards namely:

1. New and Existing Building Category

This category refers to buildings that have not undergone major improvements.

2. Retrofitted Building Category

This category refers to buildings that have undergone major changes and further improvements to energy efficiency.

3. Special Features Category

This category refers to special projects (in building) that apply or develop advanced technologies which result in significant energy savings.

4. Tropical Building Category (New)

This newly introduced is for buildings with not more than 50% of its total gross floor area being air-conditioned and that they are not religious buildings. The primary focus is on its passive design.

Winners are selected based on the following criteria:

- Efficiency of building services, such as air-conditioning and lighting systems
- Building orientation and envelop design
- Use of daylighting, natural ventilation and landscaping
- Use of building automation system
- Energy management and maintenance of equipment
- Total energy savings of at least 15% (additional criterion for “Retrofitted Building” category)
- Implementation of special measures and/or application of advanced technologies (criteria for “Special Feature” category)

2003 ASSESSMENT COMMITTEE

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New & Existing Building Category - 1st Position

Ministry of Foreign Affairs Building



Building Owner	Ministry of Foreign Affairs
Architect	CPG Consultants Pte Ltd
M & E Engineer	CPG Consultants Pte Ltd

Selected winning features:

On-Site Natural Environment Considerations

- Building is surrounded by lush vegetation

Passive Design Concepts

- The windows are high performance (low-emissivity) double-glazing with shading coefficient of 0.25, U-value of $1.2\text{W/m}^2\text{degK}$
- Cafeteria has been designed with partial roof skylights and glass wall enclosures.
- The new block's average depth is not more than 12m thus allowing the extensive use of daylighting; task lighting is provided at each workstation to supplement daylight where necessary

Active Design Concepts

- Chillers are configured for flexibility in meeting load fluctuation
- Building is equipped with computerised integrated building management system

Management and Maintenance Scheme

- Senior management is totally committed to energy efficiency and conservation.

Environmental Impact Consideration

- Waste paper is shredded centrally, collected and sent for recycling.

Retrofitted Building Category - 1st Position

Grand Hyatt Singapore



Building Owner Borneo Properties Sdn Bhd
Energy Consultant Electric Eye Pte Ltd

Selected winning features:

Actual/Measured Energy Savings

- The energy consumption of its air-conditioning and water pumping systems was reduced by about 60%
- The amount of make-up water required for cooling tower was also reduced by about 54%

Passive Design Concepts

- Large trees and grass were planted at the main entrance, the podium roof and the surrounding areas.

Active Design Concepts

- A Total System Design Approach was adopted to improve the hotel's system efficiency
- After retrofitting, the chiller system's efficiency is 0.56kW/ton.
- The maximum electricity demand was reduced by approximately 1MW

Management and Maintenance Scheme

- The Energy Management System is web based; therefore, it can be easily accessed anywhere in the world. The monitoring system measures real time at one-minute intervals.

Environmental Impact Consideration

- Green Energy Management (GEM) was a community project of Grand Hyatt Singapore. The objective was to accelerate market transformation to reduce greenhouse gas emissions by demonstrating that GEM is a "low-risk, high-return" proposition.

New & Existing Building Category - 1st Runner-up Position

Capital Tower



Building Owner	Capitaland Ltd
Architect	RSP Architects Planners & Engineers (Pte) Ltd
M & E Engineer	Parsons Brinckerhoff Pte Ltd

Selected winning features:

On-Site Natural Environment Considerations

- The urban plaza features a dynamic water pool with various ball-shaped sculptures.

Passive Design Concepts

- The windows are installed with 2.3m high double-glazed glass

Active Design Concepts

- Carbon monoxide sensors are installed in each carpark zone to control the variable speed drive ventilation fans
- Energy recovery wheels are installed to harness cold air from toilet exhaust to pre-cool the outdoor fresh air intake prior to mixing it with the return air in the AHUs.

Management and Maintenance Scheme

- Building's intelligent Building Management System does not only monitor the M&E services, but also provides car-parking guidance.
- Management adopts a comprehensively planned preventive maintenance program for all it's systems and equipment.

Environmental Impact Consideration

- Condensate from AHUs located from 22 to 51st storeys are collected & subsequently fed to the cooling tower at level 21 by gravity

New & Existing Building Category - 1st Runner-up Position

Tan Tock Seng Hospital



Building Owner	Tan Tock Seng Hospital Pte Ltd
Architect	CPG Consultants
M & E Engineer	CPG Consultants Pte Ltd

Selected winning features:

On-Site Natural Environment Considerations

- The bow shaped hospital ward at Tower Block helps to divert the wind to the non-airconditioned wards.

Passive Design Concepts

- All the windows are covered with heat reduction film.

Active Design Concepts

- Lighting at all the public restrooms are controlled by motion sensors
- Building lighting load is 5W/m² based on GFA

Management and Maintenance Scheme

- Energy conservation committee monitors the monthly energy usage and actively looks for possible ways to improve the operating efficiency of the equipment.

Environmental Impact Consideration

- Housekeeping tracks the amount of waste generated and recycles them.