

12 December 2002

DID:63258660

FAX:63254437

Email: [Alice\\_goh@bca.gov.sg](mailto:Alice_goh@bca.gov.sg)

Dear Sir/ Madam,

### NOMINATION FOR ENERGY EFFICIENT BUILDING AWARDS 2003

We are pleased to inform you that the Energy Efficient Building Awards (EEBA) 2003 is now open for nominations.

2. The aim of the Energy Efficient Building Awards is to promote energy efficiency in buildings by according recognition to building owners, architects, engineers, energy consultants and energy service companies who have integrated energy efficiency into their building design, operation and maintenance.

3. The nomination for the awards must submit prescribed entry forms and project write-up complete with drawings and project photos **before the extended closing date which is 13th January 2003, 5pm.**

4. The Nomination Forms are available for download at the BCA website at [www.bca.gov.sg](http://www.bca.gov.sg) using the following link, "Industry Programmes ↓ Energy Efficiency ↓ News & Events". Alternatively, you may type in the following website address to access the form,

[http://www.bca.gov.sg/industry\\_programmes/energy\\_efficiency/news\\_events/others/eeba.pdf](http://www.bca.gov.sg/industry_programmes/energy_efficiency/news_events/others/eeba.pdf)

5. Please visit BCA website for more details of the Award or, alternatively, you may contact me at 6325-8660 or Mr Bok Chee Meng at 6325-8636.

6. Thank you.

Yours sincerely,



Alice Goh (Ms)

Secretariat

For BCA Energy Efficient Building Awards

Energy Efficient  
Building  
Awards  
2003

## **Background**

The purpose of the Energy Efficient Building Awards (EEBA) is to promote energy efficiency in buildings and to accord recognition to building owners, architects, engineers, energy consultants and energy service companies who have integrated energy efficiency into their building design, operation and maintenance.

## **Award Categories**

The award is open to all buildings. Building owners can participate in any one of the four categories, namely:

€ **NEW & EXISTING BUILDING CATEGORY**

Air-conditioned building of less than 5 years old can participate under this category provided no major improvements have been made.

€ **RETROFITTED BUILDING CATEGORY**

This category is for air-conditioned buildings where major changes and improvements have already been introduced to improve energy efficiency.

€ **TROPICAL BUILDING CATEGORY**

This newly introduced category 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.

€ **SPECIAL FEATURES CATEGORY**

The special features category is to recognise projects in buildings where innovative or advanced technologies are studied and applied and/or where special measures are implemented to enhance energy efficiency.

## **Assessment Panel**

All entries will be judged by an Assessment Panel comprising of senior representatives from the following organizations:

- € Association of Consulting Engineers Singapore
- € Building and Construction Authority
- € Energy Market Authority
- € Institution of Engineers, Singapore
- € National Environment Agency
- € National University of Singapore
- € Real Estate Developers' Association of Singapore
- € Singapore Environment Council
- € Singapore Institute of Architects

## **Assessment Criteria**

Entries will be assessed based on the following criteria:

### **For New & Existing Building Category**

1. On-Site Natural Environment Considerations (15%)  
(e.g. use of vegetation, landscape, hardscape, water body and wind)
2. Passive Design Concepts (25%)  
(e.g. building orientation and design, envelope design, daylighting and natural ventilation)
3. Active Design Concepts (25%)  
(e.g. air-conditioning, lighting, building automation and energy recovery)
4. Management and Maintenance Scheme (25%)  
(e.g. energy management system and maintenance programme)
5. Environmental Impact Consideration (10%)  
(e.g. waste management and pollution management)

### **For Retrofitted Building Category**

1. Actual / Measured Energy Savings (25%)
2. Passive Design Concepts (25%)
3. Active Design Concepts (25%)
4. Management and Maintenance Scheme (20%)
5. Environmental Impact Consideration (5%)

### **For Tropical Building Category**

1. On-Site Natural Environment Considerations (20%)
2. Passive Design Concepts (40%)
3. Active Design Concepts (15%)
4. Maintenance & Management Scheme (15%)
5. Environment Impacts Consideration (10%)

The decision of the Assessment Panel shall be final and the panel has absolute discretion to make or withhold an award. The Assessment Panel may also re-categorise any entry, which in their opinion, fits better in another category.

## **Eligibility**

The EEBA is opened to all buildings in Singapore that meet the following pre-qualification criteria:

1. Energy Efficiency Index
  - € <250 kWh/m<sup>2</sup>/year based on Air conditioned area (for All Categories, excl. Tropical Building Category)
  - € < 150 kWh/m<sup>2</sup>/year based on Gross Floor area (for Tropical Building Category)
2. A/C Temperature and Other Settings
  - € Between 23°C and 25°C
  - € Relative humidity between 55% to 65%
3. Lighting Load
  - € Maximum 25 W/m<sup>2</sup> (gross floor area) for other buildings
  - € Maximum 15 W/m<sup>2</sup> (gross floor area) for office buildings
4. Occupancy Rate (average over the last 12 months)
  - € Minimum 60% of total units for hotels
  - € Minimum 80% of total area for other buildings
5. Operating hours/yr.: To be based on 2000 hours/year
6. At least 1 full-year of operation
7. Additional Criterion for Retrofitted Building Category
  - € Total energy savings of at least 15% after retrofitting
8. Additional Criteria for Tropical Building Category
  - € A/C area shall not exceed 50% of its total gross floor area
  - € Total gross floor area shall not be less than 500m<sup>2</sup>
  - € Not religious building
9. Additional Criterion for New & Existing Building Category and Tropical Building Category
  - € Building shall not be more than 5 years old

## **Trophies, Plaques & Certificates**

Building owner of the top entry in each category will receive a trophy. The first and second runners-up will receive plaques. Project consultants will be presented certificates of recognition. Trophies, plaques and certificates will be presented at the BCA Awards Ceremony 2003.

## ASEAN Awards

EEBA winners will also have the honour of representing Singapore at the ASEAN Building Energy Efficiency Best Practices Award (ASEAN Award) in 2003

### Entry Form and Write-Up

Entries for the awards shall be submitted using the attached prescribed form, which are also available from BCA-NUS energy website at [www.bdg.nus.edu.sg/buildingenergy](http://www.bdg.nus.edu.sg/buildingenergy). A following write-up of the energy efficient features is also required. The entry form and write-up must reach BCA **not later than 5pm on 13th January 2003**. *Type of font and size: Times Roman 12*

#### **For New & Existing Building Category and Retrofitted Building Category**

*(For guidelines of the write-up please refer to Appendix)*

1. Cover of report:	1 page
2. Overall on-site design: <i>(For <b>Retrofitted Bldg Category</b> will be <b>Total Energy Saving</b> instead of <b>Overall On-Site Design</b>)</i>	2 pages
3. Active design write-up ( <b>up to 4 features</b> )	4 pages
4. Passive design write-up ( <b>up to 4 features</b> )	4 pages
5. Maintenance & management write-up ( <b>up to 4 features</b> )	4 pages
6. Environmental impacts:	1 page
7. Drawings (in A4 / A3 size): (Typical floor plan, site layout, roof plan and vertical cross section)	4 pages
Total:	20 pages (Max)

#### **For Tropical Building Category**

*(For guidelines of the write-up please refer to Appendix)*

1. Cover of report:	1 page
2. Overall on-site design:	2 pages
3. Active design write-up ( <b>up to 2 features</b> )	2 pages
4. Passive design write-up ( <b>up to 4 features</b> )	4 pages
5. Maintenance & management write-up	1 pages
6. Environmental impacts:	1 page
7. Drawings (in A4 / A3 size): (Typical floor plan, site layout, roof plan and vertical cross section)	4 pages

Total: 15 pages (Max)

#### **For Special Feature Category**

The write-up shall not exceed 10 pages highlighting the advanced technologies and/or special measures implemented to enhance energy efficiency.

## **Presentation to Assessment Panel**

Shortlisted projects will be required to make a presentation to the Assessment Panel tentatively in the **fourth week of February 2003**. The presentation of not longer than 20 minutes should focus on the energy efficient features and their effectiveness.

## **Site Visit by Assessment Panel**

Shortlisted projects will also be required to be accessible for site visits by the Assessment Panel tentatively in the **fourth week of February 2003**. The site visits will enable the Assessment Panel to verify and clarify the information presented. Generally, the site visit and presentation are held on the same day.

## **Participation in ASEAN Awards**

All winning entries will be required to participate in the ASEAN Awards. Details of the ASEAN Awards will be available in March 2003.

## **Publication of Materials**

All materials submitted in connection with the entry are non-returnable and shall become the property of the Building and Construction Authority. The Authority reserves the right, without the payment of fees, royalties or otherwise to make whatever use it may consider desirable of all materials submitted in connection with the entries, including the publication of photographs and names and exhibition & publication of materials.

Entries for the BCA Energy Efficient Building Awards or any enquiry should be addressed to:

The Secretariat  
BCA Energy Efficient Building Awards  
Building and Construction Authority  
5 Maxwell Road #07-00  
Tower Block MND Complex  
Singapore 069110  
Fax: 63254437

Attention:  
Miss Alice Goh  
Email: [alice\\_goh@bca.gov.sg](mailto:alice_goh@bca.gov.sg)  
Tel: 63258660  
or  
Mr Bok Chee Meng  
Email: [bok\\_chee\\_meng@bca.gov.sg](mailto:bok_chee_meng@bca.gov.sg)  
Tel: 63258636

## Entry Form for Energy Efficient Building Award

Name of Building:

Name of Owner/Management Company:

Address:

Contact Person:

Email:

Tel. No.:

Fax No.:

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### Instructions:

i. Please answer ALL the questions given in this questionnaire. If relevant information is not available, please indicate NA.

ii. Please indicate one category you wish to participate in:

- New & existing building
- Retrofitted building
- Tropical building
- Special feature

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### 1 Physical Building Background:

1.1 Usage of the building:

- a) Single use development
- b) Mixed use development

If your answer is (a) please proceed to (1.1a), otherwise proceed to (1.1b)

(1.1a) For single use development

Office     Hotel     Others (please specify) \_\_\_\_\_

(1.1b) For mixed use development (please indicate types)

Office     Hotel     Retail     Warehouse

Light industry     Shopping centre

Others (please specify) \_\_\_\_\_



[1.1b (continue)] Please indicate the percentage space allocation for mixed use development

Types	Percentage of Designated Space (%)
Example:	
Office	80%
Retail	20%
Office	
Retail	

- 1.2 Age of building: \_\_\_\_\_(years)
- 1.3 Date of the last retrofit, if applicable: \_\_\_\_\_ (month/year)

If retrofitted:

- (a) Complete retrofit  Partial retrofit

(b) Please tick if the following have been retrofitted:

Facades system

Air-conditioning system

M & E systems

Transportation system

Lighting system

Others (please specify) \_\_\_\_\_

(c) Retrofitted area: \_\_\_\_\_ % of total area

(d) 1.4 Total number of storeys

(including above ground car park): \_\_\_\_\_

1.5 Total number of basement floors

(including basement car park): \_\_\_\_\_

1.6 Number of above ground car park levels: \_\_\_\_\_

1.7 Number of below ground car park levels: \_\_\_\_\_

1.8 Total gross floor area (m<sup>2</sup>): \_\_\_\_\_

1.9 Car park area (m<sup>2</sup>): \_\_\_\_\_

1.10 Lettable area (m<sup>2</sup>): \_\_\_\_\_

1.11 Air conditioned area (m<sup>2</sup>): \_\_\_\_\_

- 1.12 Non air-conditioned area excluding car park (m<sup>2</sup>): \_\_\_\_\_
- 1.13 Total building height (m): \_\_\_\_\_
- 1.14 Floor to floor height (m): \_\_\_\_\_
- 1.15 Building operation hours (hrs/week): \_\_\_\_\_
- 1.16 Air-conditioning system operation hours (hrs/week): \_\_\_\_\_
- 1.17 Total number of occupants (estimated): \_\_\_\_\_
- 1.18 Ave occupancy rate (% of total area): \_\_\_\_\_
- 1.19 Surface area of the envelope incl roof to GFA ratio \_\_\_\_\_
- 1.20 Plot ratio (total GFA/ground area) \_\_\_\_\_

2 Building Energy Consumption:

2.1 Energy consumption for:

- Owner occupied
- Landlord and tenants

2.2 Please provide the total monthly energy consumption of the last 12 to 24 months in column A. Details of the monthly energy consumption of landlord and tenants may also be provided in columns B and C.

Month & year	Building energy consumption (Total) (kwh/month)	Building energy consumption (Landlord) (kwh/month)	Building energy consumption (Tenants) (kwh/month)
	<u>Column A</u>	<u>Column B</u>	<u>Column C</u>

Month & year	Building energy consumption (Total) (kwh/month)	Building energy consumption (Landlord) (kwh/month)	Building energy consumption (Tenants) (kwh/month)
	<u>Column A</u>	<u>Column B</u>	<u>Column C</u>

2.3 Does your building use other energy source?

Yes  No

If yes, please specify fuel and purpose.

- Gas, please specify purpose: \_\_\_\_\_
- Solar, please specify purpose: \_\_\_\_\_
- Wind, please specify purpose: \_\_\_\_\_
- Others, please specify purpose: \_\_\_\_\_

3 What are the on-site natural environment considerations? Please elaborate in your write-up.

Yes included in the write-up  No not included

4 Passive Design Information:

4.1 Envelope OTTV (W/m<sup>2</sup>): \_\_\_\_\_

4.2 Roof OTTV (W/m<sup>2</sup>): \_\_\_\_\_

4.3 Type of façade

Stone  Tiling

Aluminum curtain wall  Glass

Others (please specify)\_\_\_\_\_

4.4 Colour of façade:

Light  Dark  White

Metallic  Others (please specify)\_\_\_\_\_

4.5 Use of shading devices

Blinds/curtains

External sun shade

Others (please specify)\_\_\_\_\_

4.6 Building orientation

East facing

West facing

Others (please specify)\_\_\_\_\_

4.7 Location of service core:

Central

Perimeter

Others (Please specify)\_\_\_\_\_

4.8 What are the other passive design features (e.g. daylighting and natural ventilation)? Please elaborate in your write-up.

Yes included in the write-up  No not included

5 Active Design Information

5.1 Office area building systems operating schedule:

Schedule	Weekdays	Saturday	Sunday	Public holiday
Start time				
End time				

Percentage of total area served: \_\_\_\_\_

5.2 Retail area building systems operating schedule:

Schedule	Weekdays	Saturday	Sunday	Public holiday
Start time				
End time				

Percentage of total area served: \_\_\_\_\_

5.3 Other areas: Please specify: \_\_\_\_\_

Schedule	Weekdays	Saturday	Sunday	Public holiday
Start time				
End time				

Percentage of total area served: \_\_\_\_\_

5.4 Building indoor environment

Indoor air setting : Temperature (°C) \_\_\_\_\_  
 : Relative Humidity (%) \_\_\_\_\_

5.5 Building air-conditioning system and equipment:

Fresh air exchange rate (m<sup>3</sup>/h per m<sup>2</sup> floor area) \_\_\_\_\_  
 Efficiency of air-conditioning chiller (kW/ton) \_\_\_\_\_

5.6 Building lighting load (W/m<sup>2</sup> based on GFA) \_\_\_\_\_

5.7 Cooling Load \_\_\_\_\_ W/m<sup>2</sup> (air-conditioned area)

5.8 What are the other active design features (e.g. energy recovery system, energy saving lighting fixtures and control and building automation system)? Please elaborate in your write-up.

Yes included in the write-up       No not included

## 6 Management and Maintenance Scheme

6.1 Is there an energy committee to monitor and conserve energy consumption?

Yes       No

6.2 Does the Building Management have a clearly spelt out energy policy? If yes, please provide details of the policy and methods of implementation. Please elaborate in your write-up.

Yes included in the write-up       No not included

6.3 Is there a maintenance programme? Please elaborate in your write-up.

Yes included in the write-up       No not included

7. What are the environmental impact consideration (e.g. waste and pollution management)? Please elaborate in your write-up.

Yes included in the write-up       No not included

## 8. Additional Information for Retrofitted Buildings

8.1 Energy savings in air-conditioned area \_\_\_\_\_ kWh/m<sup>2</sup>/yr (based on 2000 operational hours/year)

8.2 Energy savings in lighting systems \_\_\_\_\_ kWh/m<sup>2</sup>/yr (based on 2000 operational hours/year)

9 Project Team

Architect: \_\_\_\_\_

M & E Engineer: \_\_\_\_\_

Others (please specify): \_\_\_\_\_

10 Affirmation

We certify that the information given above is true and accurate and that the Assessment Panel may seek to verify them independently, if required.

a) Signature of Building Owner/Manager \_\_\_\_\_

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Contact: \_\_\_\_\_

Date: \_\_\_\_\_ Company Stamp: \_\_\_\_\_

b) Signature of Architect: \_\_\_\_\_

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Contact: \_\_\_\_\_

Date: \_\_\_\_\_ Company Stamp: \_\_\_\_\_

c) Signature of Engineer: \_\_\_\_\_

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Contact: \_\_\_\_\_

Date: \_\_\_\_\_ Company Stamp: \_\_\_\_\_

## **Appendix - Guidelines of the writeup**

### **1. Cover of Report**

Name of building, photo, etc.

### **2. Overall Site Design**

General discussion to focus on the following: Use of vegetation, landscape and hardscape (effective application of ground covering plant and large plant, modification of landscape and topography, use of hardscape materials); use of water body (effective application of water body: location, quantity, etc.); use of wind (effective application of wind: natural ventilation, stack ventilation, etc.); and other use of on-site natural environment (the use of night sky radiation, others).

### **3. Active Design**

Discussion on the following areas: air-conditioning system (selection, layout and plant system design):  $\_\_ \text{ kW/ton } \_\_ \text{ W/m}^2$  ; Lighting systems:  $\_ \text{ W/m}^2$ ; Other systems (transportation, etc.)  $\_\_ \text{ W/m}^2$  ; Indoor air quality (thermal comfort, ventilation,  $\_ \text{ m}^3/\text{hour/person}$ , etc.); overall energy consumption per sq.m. of normal air-conditioned areas:  $\_\_ \text{ W/m}^2$ ; other active design concepts (specify).

### **4. Passive Design**

Discussion on the following areas: orientation and building design (the orientation of building, the shape of building (surface area to gross floor area ratio), the location of service core, the position of entrances, the hardscape around building, spatial organisation for various functions, etc.); envelope design (material, shading, fenestration, etc.); material (heat transfer protection, humidity protection, MRT effect, color of envelope, infiltration protection and control, Etc.); shading (efficiency of shading devices, the use of natural shading devices, the use of shading from adjacent buildings, etc.); fenestration (Fenestration design: location, nature and size of opening, light to solar heat gain ratio (LT/SC), etc.); Overall heat transfer through building envelope: wall  $\_ \text{ W/m}^2$ ; Roof  $\_ \text{ W/m}^2$ ; daylighting (the use of diffuse radiation in building: hall, atrium, corridor, parking, toilet, etc., zoning for integrated lighting and daylighting, contrast ratio of brightness); natural ventilation; other passive design concepts.

### **5. Maintenance & Management**

Discussion on the following areas: energy management systems (building Energy Management System (BAS), energy consumption monitoring system, etc.); maintenance and management measures (manpower:  $\_\_ \text{ man-hour/year}$ , maintenance contractor, availability of energy management engineer, training of maintenance workers:  $\_\_\_\_ \text{ cumulative no. of hours}$ ); training programmes (with description, etc.); others (specify).

### **6. Environmental Impacts**

Discussion to focus on the following areas: waste management; pollution management (air, noise, visual, exhaust, etc.); green/non-toxic materials; others (specify).