

SUBMISSION FORM

ASEAN Energy Efficiency and Conservation (EE&C)

Best Practice Competition in Buildings

ASEAN Energy Awards - 2016

**Category: GREEN Building**

(Deadline for submission of Electronic Entries to ACE: 14 April 2016)

page 1

Certification and Covering Note from Consultant

Sample:

The (*name of building*) occupies a site area of about \_\_\_\_\_\_ square meters and was completed in \_\_\_\_\_\_. (Following is a brief description of the building, say). The building has 2 basements and 9-storeys (5 storey H-shaped ward tower block above the 4-storey podium block) with a total gross floor area of \_\_\_\_\_ square meters.

The details of client and project consultants (as appropriate) are:

Client : *(Name of Building)*

Architect :

M&E Engineers :

C&S Engineers :

Project Managers :

|  |  |  |
| --- | --- | --- |
| **Item** | **Data** | **Compliance**  **(Put check)** |
| **Submission Requirement** |  |  |
| * Certification and covering note from consultants | 1 page |  |
| * Cover of Report | 1 page |  |
| * Energy Efficiency (active and passive designs) | Max 4 pages |  |
| * Renewable Energy | Max 2 pages |  |
| * Water efficiency | 1 page |  |
| * Environmental Sustainability (Materials, Greenery, Sustainable Site, etc) | Max 2 pages |  |
| * Indoor Environmental Quality | Max 3 pages |  |
| * Operation and maintenance&Other Green features, and Innovation | Max 3 pages |  |
| * Building Information | Max 4 pages |  |
| * Drawings (in A4 / A3 size): Typical floor plan, site layout, roof plan and vertical cross section, etc | Max 4 pages |  |
| **Pre-Qualification** |  |  |
| * Energy Efficiency Index of Occupied Air-conditioned Area: Office: 160 kWh/m2/yr; Library: 160 kWh/ m2/yr; Retail/Shopping Malls: 192 kWh/ m2/yr; Hotels: 216 kWh/ m2/yr; Hospital: 288 kWh/m2/yr | \_\_\_ kWh/m2/yr |  |
| * Temperature and Other Settings: Not less than 21ºC but not more than 26ºC; RH: max 70% (applies to air-conditioning. Not pre-requisite - Higher score for having RH control system (below 65%). |  |  |
| * Lighting Load: Office - Max 12 watts/m2; Others - Max 20 watts/m2 | \_\_\_ watts/m2 (GFA) |  |
| * Operating hours/yr: 2,000 hours/year |  |  |
| * At least 1 full-year of operation prior to nomination in national competition | \_\_\_ years |  |
| **Type of Font: Times Roman 12** |  |  |

The (name of building) hereby agreed to allow the ACE Board of Judges and the Japanese experts to visit the building and verify the authenticity of the data. However, two weeks advance notice is required to allow for necessary arrangements.

The undersigned certified that the information given is true and accurate and prepared with the consent of the party/ies involved.

|  |  |  |
| --- | --- | --- |
| **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Name of the Client**  Office, Position  Tel, fax, e-mail |  |  |
| **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Name of Consultant**  Office, Position  Tel, fax, e-mail | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Name of Consultant**  Office, Position  Tel, fax, e-mail | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Name of Consultant**  Office, Position  Tel, fax, e-mail |
| **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Endorsed by Focal Point** Name, Office (*country*) & Position  Tel, Fax, e-mail |  |  |

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Cover of Report (Name of Building, photo, etc.)

page 3

ENERGY EFFICIENCY - ACTIVE & PASSIVE DESIGN (MAX 4 pageS) [30 POINTS]

**1.0 Passive Design Concepts**

1.1 Orientation of building, Artist Impresion, OTTV, RTTV and façade design

1.2 Window to Wall Ratio \_\_\_\_\_\_\_\_\_%

1.3 i. U value and SC value of fenestration, including shading elements of east and west facade

ii. U value of opaque wall element

1.4 Overall heat transfer through building envelope (1. Wall \_\_\_\_\_\_\_\_ W/m2; 2. Roof \_\_\_\_\_\_\_\_ W/m2 )

1.5 Daylighting (the use of diffuse radiation in building: hall, atrium, corridor, parking, toilet, etc.)

1.6 Zoning for integrated lighting and daylighting

1.7 Natural Ventilation

1.8 Air-conditioned area over Gross Floor Area

1.9 Other passive design concepts, roof gardening.

**2.0 Active Design Concepts**

2.1 Air-conditioning system(selection, layout and plant system design): \_\_\_\_\_\_\_\_ kW/ton \_\_\_\_\_\_\_\_ W/m2

Summary table:

|  |  |
| --- | --- |
| Chiller Plant | Efficiency(kW/ton) |
| Chiller (A) |  |
| Chilled water pump (B) |  |
| Condenser water pump (C) |  |
| Cooling tower (D) |  |
| **System efficiency**  **(A + B + C + D)** |  |

* + 1. System efficiency of air con plant including air side equipment: Include chillers, chilled water pumps, condenser water pumps, AHU, FCU and cooling tower.

1. Selection, layout and plant system design
   * 1. Cooling load (W/m2) based on air-conditioned area
     2. Heat Recovery (e.g. heat pump for hot water)
     3. Lighting systems: \_\_\_\_\_\_\_\_ W/m2
     4. Vertical transportation (e.g. energy efficient lift, escalators with motion sensor control, etc)
     5. Other active design concepts, please specify

**(Note: This introductory note must be deleted in the submission.)**

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ENERGY EFFICIENCY - ACTIVE & PASSIVE DESIGN (MAX 4 pageS)

page 5

ENERGY EFFICIENCY - ACTIVE & PASSIVE DESIGN (MAX 4 pageS)

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ENERGY EFFICIENCY - ACTIVE & PASSIVE DESIGN (MAX 4 pageS)

page 7

RENEWABLE ENERGY(MAX 2 pageS)

[ 5POINTS]

1. Total renewable energy installed capacity and total energy generated (kWh) yearly
2. % replacement of total building energy consumption by renewable energy
3. Total investment and pay-back period
4. How much of total electricity can be saved (kWh) in a year?

**(Note: This introductory note must be deleted in the submission.)**

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RENEWABLE ENERGY(MAX 2 pageS)

page 9

WATER EFFICIENCY (1 PAGE)

[10 POINTS]

1. Use of water efficient fittings (e.g. flow rate of taps L/min, dual flush WCs, L/flush etc)
2. Provision of water sub-metering and leak detection system
3. Use of non-potable water for irrigation
4. Use of water efficient irrigation system (e.g. drip irrigation with rain sensors)
5. Use of non-potable water for cooling tower and other purposes
6. Rainwater harvesting & percentage in reduction of potable water consumption
7. Water treatment / recycling capacity
8. Others, pls specify

**(Note: This introductory note must be deleted in the submission.)**

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ENVIRONMENTAL SUSTAINABILITY (MAX 2 PAGES)

[25POINTS]

1. Sustainable construction
2. Conservation of existing structures & material reuse
3. Use of materials/ products with recycled content
4. Environmentally friendly products with green label certification
5. Good Environmental Management system during construction
6. Greenery
7. Restoration and Conservation of existing trees
8. Vertical greenery
9. Roof gardens
10. % landscape areas over total site area
11. Provision of recycling facilities
12. Storage, collection and disposal (waste management)
13. Public transport accessibility
    1. Distance from nearest bus stop/train station
14. Materials (Percentage of Using Local Materials
15. Sustainable Site (external environment)
16. Barrier free and public access
17. Others, pls specify

**(Note: This introductory note must be deleted in the submission.)**

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ENVIRONMENTAL SUSTAINABILITY (MAX 2 PAGES)

page 12

INDOOR ENVIRONMENTAL QUALITY (max 3 pages)

[20 POINTS]

1. Thermal comfort – design indoor temp and relative humidity
2. Number of Ventilation air per person (CFM/person)
3. Use of low volatile organic compound (VOC) paints and coatings
4. Use of VOC and low formaldehyde emission products (e.g. carpets)
5. Use of high frequency ballast to avoid low frequency flickering
6. Pollution (noise, vibration, EM wave, Dust, Bacterial count and C02 concentrationsensoring)
7. Environmental tobacco smoke (ETS) and smoke control
8. Lighting illumination
9. Others, pls specify.

**(Note: This introductory note must be deleted in the submission.)**

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INDOOR ENVIRONMENTAL QUALITY (max 3 pages)

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INDOOR ENVIRONMENTAL QUALITY (max 3 pages)

page 15

OPERATION AND MAINTENANCE & OTHER GREEN FEATURES, and innovation (max 3 pages)

[10 POINTS]

1. Any other feature with positive environmental impact
2. Bio-climatic architecture and design
3. Sustainable operation and maintenance
4. Management Policy
5. Buildings Standard of Operation (SOP)
6. As Build Drawing
7. Records, Logs & other documentation that able to show the improvement of Green Building Design
8. Performance Achievement
9. Cogeneration
10. Others, please specify

**(Note: This introductory note must be deleted in the submission.)**

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OPERATION AND MAINTENANCE & OTHER GREEN FEATURES, and innovation (max 3 pages)

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OPERATION AND MAINTENANCE & OTHER GREEN FEATURES, and innovation (max 3 pages)

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Building Information (Fill up details max 4 pages)

## General Information

* + - 1. Name of the building
      2. Name of owner and management company
      3. Address
      4. Tel. No./Fax No./E-mail address

**B. Building Physical Information**

* + - 1. Physical building background

- Brief history

- Single function usage or mix function usage (specify)

* + - 1. Age of building
      2. Any retrofit done? When? What?
      3. Total number of storeys
      4. Total number of basement floor
      5. Number of car park storeys
      6. Total gross floor area
      7. Surface area of the envelope including the roof to gross floor area ratio
      8. Car park area
      9. Gross lettable area
      10. Air-conditioned area
      11. Non-air conditioned area
      12. Plot ratio (total GFA / ground area)

1. **Building Design and Practice Information**
   * + 1. Plants and landscape design/ wind and natural ventilation/ water features/ daylighting/ etc.
       2. Facade and shading design

- Type of facade

- Color of facade

- Use of shading devices

* + - 1. Location of service core
      2. Shape of building
      3. Overall heat transfer through building envelope:

Wall \_\_\_\_\_\_\_ W/m2; Roof \_\_\_\_\_\_\_\_ W/m2

* + - 1. Lighting fixtures
      2. \*Lighting load \_\_\_\_\_\_\_\_ W/m2 (gross floor area)
      3. Building air-conditioner system and equipment  
          - Fresh air exchange rate: \_\_\_\_\_\_\_ m3/hour/person  
          \_\_\_\_\_\_\_\_ m3/hour/m2  
          \_\_\_\_\_\_\_\_ m3/hour  
          - Energy efficiency of aircon chiller: \_\_\_\_\_\_\_\_ kW/ton
      4. Cooling Load \_\_\_\_\_\_ W/m2 (air-conditioned area)

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Building Information (Fill up details max 4 pages)

1. **Operation Information**
   * + 1. Occupancy rate (year 2001): Minimum \_\_\_\_\_ % of total area
       2. Total number of occupants
       3. Ownership of building (occupied by owner(s), renter(s), etc.)

30. Building operating schedule

- weekdays from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- Saturday from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- Sunday from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- Operating hours/ yr \_\_\_\_\_\_\_\_

31. Building indoor environment: Indoor air quality setting: temperature and RH

**E. Energy Consumption Information**

1. Peak demand (monthly)
2. Energy used (monthly)
3. Typical Load curve (weekdays, weekends)
4. \* Energy efficiency index: air-conditioned area \_\_\_\_\_\_ kWh/m2/yr

(based on 2,000 operational hours/yr)

36. Energy consumption: Electricity \_\_\_\_\_\_\_\_ kWh/m2/yr

(based on 2,000 operational hours/yr)  
 - Fuel \_\_\_\_\_\_\_\_ Liters/yr (not for electricity generation)

**F. Energy Management Information**

37. Building energy management system Connected physical points \_\_\_\_\_\_\_ (no )

38. Energy saving: Schedule programme \_\_\_\_\_\_ kWh/yr  
 Duty cycle programme \_\_\_\_\_\_ kWh/yr  
 Optimum start / stop programme \_\_\_\_\_\_ kWh/yr  
 Power demand programme \_\_\_\_\_\_ kW (mean)

* 1. **Maintenance Information**

1. Maintenance programme

* Manpower: \_\_\_\_\_\_\_\_ man-hr/yr
* Maintenance contractor
* Availability of energy management engineer
* Training of maintenance workers: \_\_\_\_\_\_ cumulative hours/yr.

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Building Information (Fill up details max 4 pages)

* 1. **Environmental Impacts**

1. Impacts of waste
2. Impacts of pollution (air, noise, visual, exhaust, etc.)  
   1. **Additional Information for Retrofitted Buildings**
3. \*Energy savings in air-conditioned area \_\_\_\_\_\_\_ kWh/m2/yr (based on 2,000 operational hours/year
4. \*Energy savings in lighting systems \_\_\_\_\_\_\_\_\_ kWh/m2/yr (based on 2,000 operational hours/year)
5. \*Retrofitted area: \_\_\_\_\_\_\_\_\_ % of total area

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Building Information (Fill up details max 4 pages)

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Drawings (A4/A3 size: typical floor plan, site layout, roof plan, and vertical cross section - max 4 pages)

page 23

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