

SCHEME FOR STAR RATING OF HOSPITAL BUILDINGS

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Bureau of Energy Efficiency
Ministry of Power, Govt. of India,
4th Floor, SewaBhawan,
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1 Scheme for Star rating of Hospital buildings

- i. Energy audit studies in buildings have shown large potential for energy savings both in government and private hospitals. Study of the available data has shown that there is an urgent need for improved energy efficiency in buildings.
- ii. National commercial energy benchmarking initiative was taken up with a goal to establish a framework to standardize energy data collection, baseline setting for “typical” commercial buildings, energy performance target setting and monitoring, and use the information to improve energy efficiency in buildings. This information can help the users and other stakeholders to evaluate building energy efficiency and track improvements as compared to other buildings and recognize the top performers.
- iii. The Star Rating Program for buildings would create a demand in the market for energy efficient buildings based on actual performance of the building in terms of specific energy usage. This programme would rate hospital buildings on a 1-5 Star scale with 5 Star labeled buildings being the most efficient.
- iv. Five categories of buildings – office buildings, hotels, hospitals, retail malls and IT parks in five climatic zones in the country have been identified for this programme.
- v. Hospital buildings with a connected load of 100 kW and above will be rated under this programme. The programme targets all the five climatic zones in India for hospital buildings with more than 50% conditioned space:
 - (a) Warm and Humid
 - (b) Composite
 - (c) Hot and Dry
 - (d) Temperate
 - (e) Cold
- vi. To apply for rating of hospital building, a standardized format **Annexure 1** is developed for collection of actual energy consumption. Data required includes hospital's built up area, number of beds, annual electricity purchased, annual electricity generated, climatic zone in which building is located, and other related information of the facility.
- vii. The Technical Committee constituted for Energy base-lining and benchmarking of commercial buildings chaired by Director General, Bureau of Energy Efficiency shall be the technical committee for the scheme.
- viii. Based on recommendations of the Technical Committee, BEE may revise the Energy Performance Index for rating of hospital buildings with a view to make the scheme more stringent. This would be done after adequate data for hospital buildings is included in the regression/ distribution analysis using the tool developed for the purpose.

2 Scheme Participation Process

- i. Building owner(s) or their authorized representatives can participate in the scheme by registering with the Bureau. Those hospital buildings having a connected load of 100 kW

and above would be considered for BEE star rating scheme. The format for submitting Building Information and Energy Data details is enclosed as **Annexure 1**.

- ii. Building owner can register for each building either manually or electronically. Initially the applications would be scrutinized on manual submission. The application for each building shall be accompanied by non – refundable registration fee of Rs.1,00,000 (Rupees One Lakh) only in the form of a crossed bank draft issued in the name of “Bureau of Energy Efficiency” and payable at New Delhi. The form can be downloaded from the BEE’s website and the building owner shall file their applications electronically/manually including the details of the crossed bank draft and shall submit the same to BEE.

In case of up-gradation of existing star rating within the validity period of 5 years from the date of award of first label, based on improved energy performance for last 2 consecutive years, the building owner(s) will be required to submit data for these 2 years, in support of enhanced energy performance. The building owner will not be required to submit any additional fee for up-gradation of the rating. In case of receipt of a second request for up-gradation of existing star label within the validity period of 8 years from the date of issue of first label, BEE will allow the same at a re-registration fee of Rs. 50,000/- (Rupees Fifty Thousand) only. The second upgraded label will be valid for a period of 5 years from the date of award of upgraded rating.

- iii. Building owner(s)/ or their authorized representatives (here-in-after called the User of label) will enter into an agreement (**Annexure 2**) on a non-judicial stamp worth Rs.100/- (rupees one hundred only), with the Bureau of Energy Efficiency (hereinafter called the Bureau) agreeing to abide by the terms and conditions of the scheme. The agreement will be valid for a period of 5 years from the date of issue of the label. In case of upgraded label, agreement and upgraded star label will be valid for the period as governed under clause 2 ii above.
- iv. A benchmarking tool called the ECObench, available online at <http://www.beeindia.in/> and <http://ecobench.eetools.in/> will be used for evaluating the rating. This tool gives the performance distribution curve, EPI, Performance Rank and relevant Stars to hospital buildings based on a list of parameter values that the facility manager enters. The underlying methodology for the calculations is shown in **Annexure 4**.
- v. The 'total electricity consumed by the hospital building' that is used as an input to evaluate energy performance, will comprise of electricity purchased from utilities and generated on site through DG/GG. However, it will not include electricity generated from on-site renewable energy sources such as solar photovoltaic etc.
- vi. After receiving the completed application for the building, the Bureau would scrutinize the application, and seek further information, if required. The Bureau would authorize the use of label after completion of the scrutiny of the application. The Bureau will have the right to conduct an energy audit or any other form of assessment of the information, provided by the builder whenever there are grounds for the same.
- vii. User of the label (building owner) shall be given a time frame of one month after the expiry of each year to file the Building Information and Energy Data for the previous year, failing which BEE shall inform the owner of the lapse and after the expiry of the

notice period of one month, the authority shall be withdrawn temporarily and owner shall be requested to furnish the information. The entire communication shall take place for a maximum period of six months failing which the authority shall be permanently withdrawn for the building and information shall be uploaded on BEE's website and put out in public domain.

- viii. Adherence to label specification: The user of label is solely responsible for the adherence to the specification of the label prescribed by BEE (as enclosed at **Annexure 3**), and the authenticity of the documents submitted. However, in the case of a new building, the Building owner(s)/ or their authorized representatives would be required to submit the detailed information in respect of the building and its energy performance after completion of 1 year of operation with full occupancy of the building.
- In case of revised application for up-gradation of rating, the Building owner(s)/ or their authorized representatives will be required to submit the detailed information in respect of the energy performance of building, retrofitting measures carried out and its enhanced energy performance for consequent two years after completion of retrofitting carried out with sustained enhanced energy performance for continuous two years of operation with full occupancy of the building. Revised label will be issued after data verification of the enhanced energy performance of the building by authorized representative of BEE.
- ix. The user of label will affix the label as per the label design and specification both in terms of size and material, manner of display, and the rating plan prescribed for the particular building type.
- x. The manner of display of the label would be such that it is at a place of prominence at the entrance of the building and at a height of 5 feet as measured from the bottom of the label with respect to the floor level.
- xi. A list of BEE labeled buildings will be maintained by the Bureau and made available to the public through publications and through its web site.
- xii. The user of label shall be solely responsible for ensuring :
- (a) The accuracy of the information displayed on the label or any public claim for label level
 - (b) Compliance to the terms and conditions of the scheme
 - (c) Directions of the Bureau on the implementation of the scheme, and
 - (d) Payment of any compensation adjudicated by any court/tribunal to any person for any information displayed on the label.
- xiii. The Bureau will work towards creating a market for energy efficient buildings through awareness and education.
- xiv. The Bureau will appoint an independent agency to evaluate the program impact and process of implementation on a periodic basis. This will help the users and other stakeholders to evaluate the building's energy efficiency and track improvements compared to other buildings and recognize the top performers through a systematic evaluation scheme, and be used for giving state and national awards.
- xv. The user of the label shall extend full cooperation to BEE or its associates by providing the relevant data for the purpose.

- xvi. The Bureau will review the scheme periodically to determine the need for revision or amendment or termination of the scheme.
- xvii. The Bureau, at any time during the operation of the scheme, may decide to terminate or modify the scheme after giving sufficient notice period.
- xviii. The User of the label, at any time during the operation of the scheme, may decide to withdraw from the scheme after giving three months' notice period to the Bureau as well as a public notice.

3 Label verification Process

- i. The Bureau through its authorized representatives would verify the label content and the manner of display on the building.
- ii. The Bureau will conduct regular sample checking of building for accuracy of the information provided by the building owner and the EPI either on its own or through a third party. This sample checking may be conducted without prior notice. The results of the sample check will be put in the public domain.
- iii. The user of the label would agree to make available the drawings of the building/facility and provide access to the building to the authorized representative of the Bureau.
- iv. If it is found that the building does not conform to the authorized label specification then a second check will be done with an authorized representative of the building owner. The date and time for the second check will be decided by the Bureau and the Building owner will be informed at least 24 hours in advance and if no representative is present then the second check results will be binding on the building owner.
- v. The result of the second check along with the information provided in the form "Building Information and Energy Data" will be put out in the public domain including an advertisement in newspaper, together with withdrawal of the authority to use the label.

4 Challenge testing

- i. The label contents can be challenged by any other star rated building owner.
- ii. The challenge must be submitted to BEE in writing along with a challenge test fee of Rs.1,00,000(Rupees one lakh) in the form of crossed demand draft in favour of Bureau of Energy Efficiency, payable at New Delhi. If the challenge test fails then this amount will be forfeited.
- iii. The BEE will examine the challenge within a reasonable time frame on receipt of the same in writing.
- iv. After BEE finds the reasonableness of the challenge test it will notify a date and time for checking the building either by its officers or by a third party in the presence of representative of the building owner and challenger/ representative. The results of checking will be shared with building owner(s) and challenger.
- v. If the building fails the star label authority then the cost of the check testing will be borne by the building owner and the deposit of Rs.1,00,000(Rupees one lakh) will be returned to the challenger. The Bureau will bring out the results of the challenge testing

in public domain along with information provided in form for “Building information and Energy data”, together with withdrawal of the authority to use the label.

Annexure-1

Table 1: Hospital Building Information and Energy Data

Date:

| | | Response: |
|----------------------|---|--|
| 1 | Years of construction completion | |
| 2 | Has your hospital building received any Green Building Certification? Yes/No If yes, please specify the rating program | |
| 3 | Hospital Information | City / District |
| | | Type of Hospital (Super Specialty, Multi-Specialty / Other, Private / Government) |
| | | Total number patient beds |
| | | Average Number of out-patients daily |
| | | Patient overnights in the year (% Occupancy) |
| 4 | Connected Load (kW) | |
| 5 | Contract Demand (kVA) | |
| 6 | Peak Demand or Maximum Demand Indicated (MDI) (kW) | |
| 7 | Installed capacity: DG/GG Sets (kVA) | |
| 8 | a) Annual Electricity Consumption (purchased from utilities, kWh) | |
| | b) Annual Electricity Consumption (through Diesel Generating (DG)/Gas Generating (GG) or Other Set(s), kWh) | |
| | c) Total Annual Electricity Consumption, 8(a) + 8(b) (kWh) | |
| 9 | a) Annual Electricity Cost, purchased from Utilities (Rs.) | |
| | b) Annual Electricity Cost generated through DG/GG Sets (Rs.) | |
| | c) Total Annual Electricity Cost, 9(a) + 9(b) | |
| 10 | Area of the building (exclude parking, lawn, roads, etc.) | a) Built Up area (m ²) |
| | | b) Carpet Area (m ²) |
| | | c) Percent Conditioned space |
| 11 | No. of Floors in the Building | |
| 12 | Hospital: Sub-metered Data | Lighting |
| | | Air-Conditioning |
| | | Water Pumping |
| | | Sterilizers & Autoclaves |
| | | Medical Equipment |
| | | Computing Equipment |
| | | Hot water generators/geysers |
| | | Lifts |
| ETP/STP/Incinerators | | |
| 13 | Installed capacity of Air Conditioning System | a) Centralized AC Plant (TR) |
| | | b) Packaged ACs (TR) |
| | | c) Window / Split ACs (TR) |
| | | d) Total AC Load (TR) |
| 14 | Installed lighting load (kW) | |
| 15 | Medical Equipment Load (kW) | |
| 16 | Water consumption in the building | Water consumption in the year (exclude consumption for garden, lawn, etc.) (kl) |
| | | Estimated hot water consumption in the year (kl) |

I hereby declare that the Hospital building is fully occupied for last one year and all above furnished information is true in all respect

Signature of the Hospital Building Owner
or authorized representative

Annexure-1

Table 2: Contact Details of the Organization and the Contact Person

| No. | Details | |
|-----|---|--|
| 1 | Organization | |
| a) | Name of the Organization | |
| b) | Postal Address | |
| c) | Phone No. | |
| d) | Name of the building Location: City/Town/District State | |
| 2 | Contact Person | |
| a) | Name & Designation | |
| b) | E-mail Address | |
| c) | Phone Nos. | |

Table 3: Output from the ECObench Tool

| | | Values |
|---|---|--------|
| A | Measured EPI (kWh/m ²): | |
| B | Benchmark EPI (kWh/m ²): | |
| C | Ratio of Measured EPI to Benchmarked EPI (a/b): | |
| D | Rank: | |
| E | Star category: | |

Note: Attach a signed copy of the final report generated from the web tool along with this annexure

Annexure-2

Application Form for Participation and Agreement
Application for Participation in the BEE Star Rating of Hospitals
(ON THE LETTER HEAD OF THE COMPANY/FIRM)

The Director General
Bureau of Energy Efficiency
4th Floor, SewaBhawan,
R.K.Puram
New Delhi-66

I/We are the Building owner(s)/authorized representative of _____ (building name and address) owned by _____ (full name of developer/firm) hereby apply for participation in the scheme “**BEE Star Rating of Hospital Buildings**”.

I/We have gone through the scheme for **the BEE Star Rating of Hospital Buildings**, and we agree to abide by the terms and conditions of the scheme. I/We am/are willing to enter into an agreement for participating in the scheme. The duly signed complete agreement is enclosed.

Dated this Day of(Year)

Signature
Name
Designation
For and on behalf of
.....
(Name of the firm)
Encl: Agreement

AGREEMENT

Agreement between the Bureau of Energy Efficiency, a statutory body under the Ministry of Power and Building owner(s)/authorized representative (the user of label) under the “BEE Star Rating of Hospital Buildings”.

Whereas the Bureau of Energy Efficiency, Ministry of Power (hereinafter referred to as the Bureau), a statutory body established under the Energy Conservation Act 2001, (52 of 2001) with its office at Bureau of Energy Efficiency 4th Floor, SewaBhawan, R.K.Puram, New Delhi-66 India has launched a scheme for **BEE Star Rating of Hospital Buildings”**.

Whereas M/s _____ (Building owner(s)/authorized representative) having its registered office at _____ (full address) has agreed to participate under the “**BEE Star Rating of Hospital Buildings”** (hereinafter referred to as the user of label)

Now therefore, the parties hereto mutually agree as follows:

1. General

1.1 Commencement and duration

1.1.1 The agreement shall be valid for a period of 5 years commencing from the date it is signed or until Notification under -----of the Energy Conservation Act 2001 issued by the Central Government, whichever is earlier.

1.2 Objective

The main objective of this Agreement is that both the parties to the Agreement shall work together to implement the scheme for “**BEE Star Rating of Hospital Buildings”** in accordance with the details of the Scheme as attached.

1.3 Use of energy efficiency label

1.3.1 The label is being promoted by the Bureau. The use of the label is assigned to M/s ABC (Building owner(s)/authorized representative) for achieving the objective defined in Article 1.2 of this Agreement.

Format for submitting Building Information and Energy Data details is enclosed as **Annexure 1**.

Energy Performance Index (EPI) in kWh / m²/ year will be considered in rating the buildings. The methodology for generating the EPI and Performance Rank with the corresponding Star Label under the various climatic zones is enclosed at **Annexure 4**.

The user of the label is solely responsible for adherence to the specification of the label prescribed by BEE(as enclosed at **Annexure 3**), and the authenticity of the documents submitted

2. Taxes and duties

2.1 The User of label shall also bear any taxes, duties, levies, registration fee, etc as applicable from time to time in the use of label under the implementation of the scheme for **“BEE Star Rating of Hospital Buildings”**

3. Amendment / Additions

3.1 If both parties to the Agreement form an opinion that any or some provision of the scheme are coming in the way of achievement of the objective of this Agreement defined in Article 1.2; and both BEE and the user of label are satisfied that the adjustment or amendment of such provisions shall contribute towards the achievement of the objective defined in Article 1.2; BEE may, adjust or amend such provisions of the scheme at any stage during the implementation of the scheme in consultation with other stakeholders

3.2 Any such adjustment or amendment shall be made in writing.

4. Notice

Any notice given by any of the parties hereunder shall be sent in writing at the address given as follows:

(1) Bureau of Energy Efficiency

The Director General
Bureau of Energy Efficiency
4th Floor, SewaBhawan,
R.K.Puram
New Delhi-66

(2) User of the label

In witness whereof the parties hereto have signed this Agreement

Signature.....

Signature.....

(Place and Date)

Bureau of Energy Efficiency

Witness 1:

Witness 2:

(Place and Date)

User of label

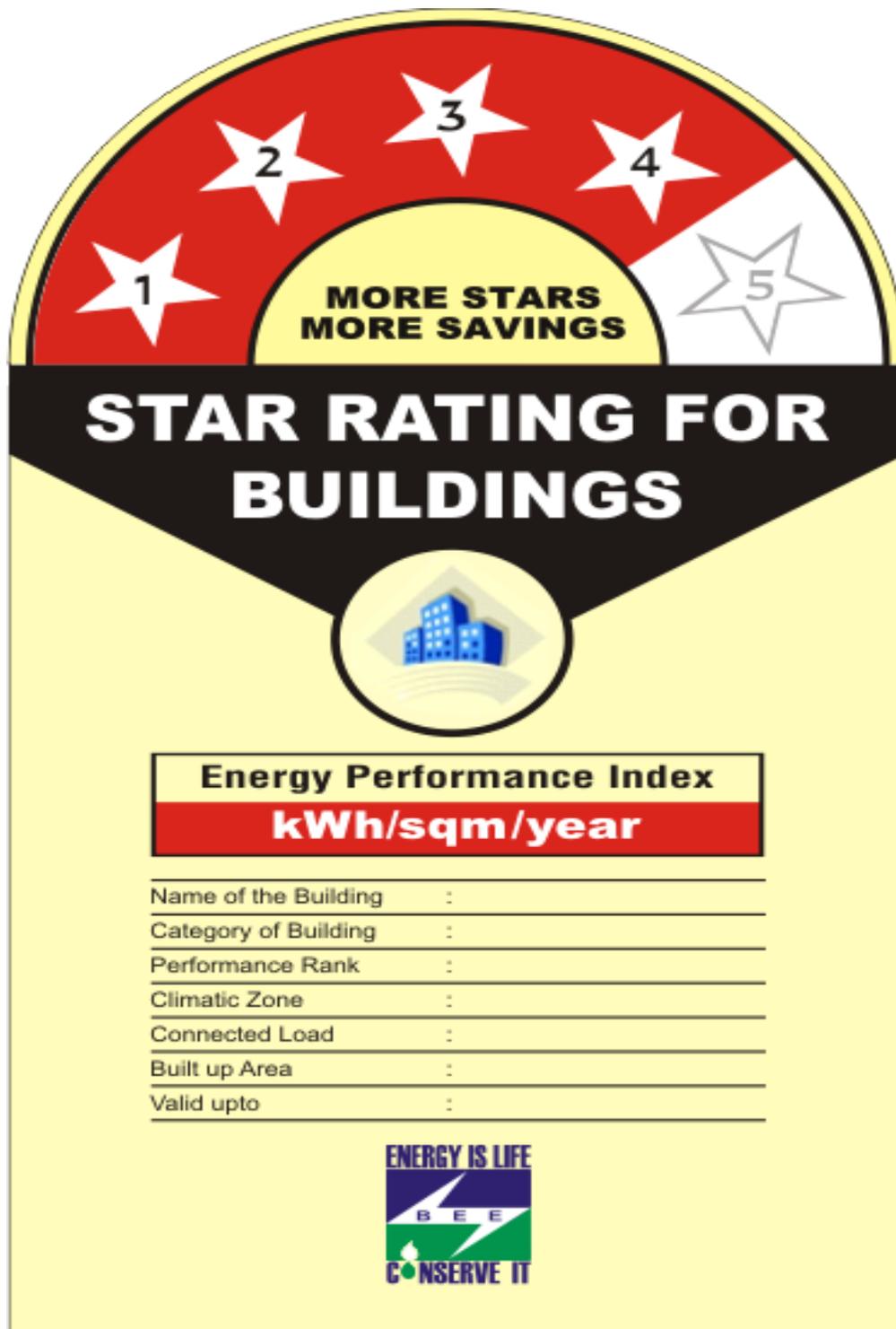
Witness 1:

Witness 2:

List of annexures

1. Building Information and Energy Data
2. Application Form for Participation and Agreement
3. Label Specification
4. Brief Methodology

Label Specification



Brief Methodology

The performance evaluation method used to star label performance of hospitals is based on a statistical model using regression and distribution analysis. The model is calibrated from sample data from across the nation and focuses on the key drivers of energy consumption including physical, locational and operational characteristics of hospital.

The method compares the energy consumption of a hospital with its benchmark value. The benchmark value represents the average energy consumption of hospitals with similar characteristics and is derived using regression analysis based on sample data.

The ratio of the actual energy consumption of a hospital to its benchmark value depicts the relative energy efficiency of the building. A performance rank is derived by comparing this ratio to a distribution derived from the sample data set. The performance rank lies in the range of 1-100. A rank of one implies performance amongst the top 1% hospital buildings in the nation, while a rank of 50 represents an average performance. This rank is converted into star labels based on table below.

| | 5 star | 4 star | 3 star | 2 star | 1 star | No Star |
|-------------------------|---------------|------------------------|-------------------------|-------------------------|-------------------------|--------------------------|
| Performance rank | ≤ 4 | > 4 and ≤ 12 | > 12 and ≤ 24 | > 24 and ≤ 40 | > 40 and ≤ 60 | > 60 and ≤ 100 |