# 22nd National Awards for Excellence in Energy Management – 2021

# LEKHA BHAVAN

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# Brief introduction of Lekha Bhavan

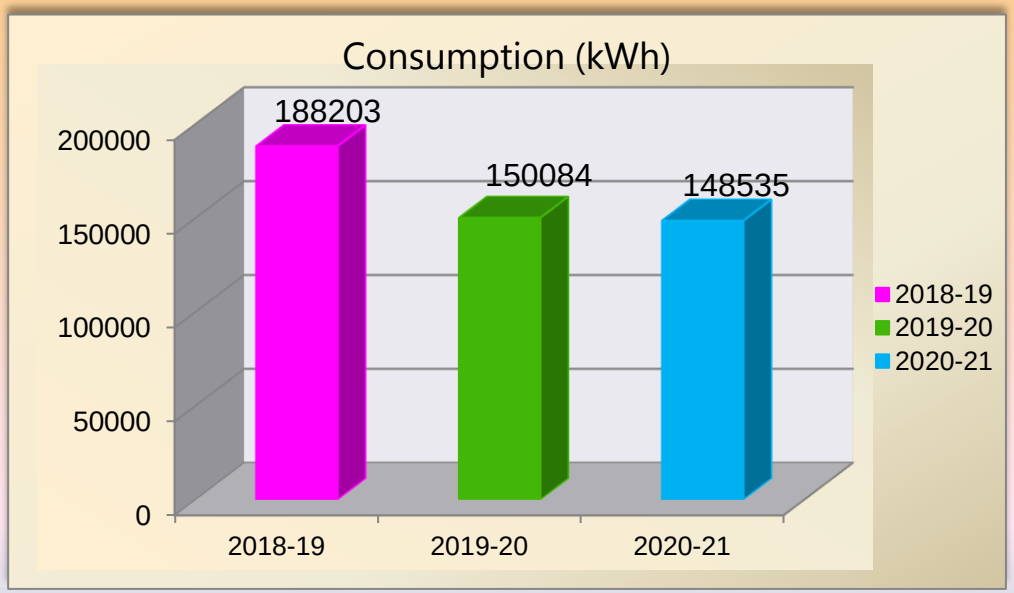

- Lekha Bhavan (FA&CAO) Office Building was built in the year 1960 and it is the Central office for the accounts department of the South Central Railway.

# Brief introduction of Lekha Bhavan

- ✓ The core functions in the building are data processing of accounts, traffic costing, exchequer control and monitoring of funds through various accounting packages exclusively developed for Railways.
- ✓ Integrated Block of 3 storeyed building.
- ✓ Built up Area: 7305.93 Sq.mt
- ✓ Building Architect: Facade with front RCC.
- ✓ Connected Electrical Load: 250 kW
- ✓ Sources of Energy:
  - 11KV/440V Substation with 2 x 500 kVA Transformers.
  - 125 KVA Standby DG Set.
  - 50 kWp Rooftop BIPV Solar Plant.

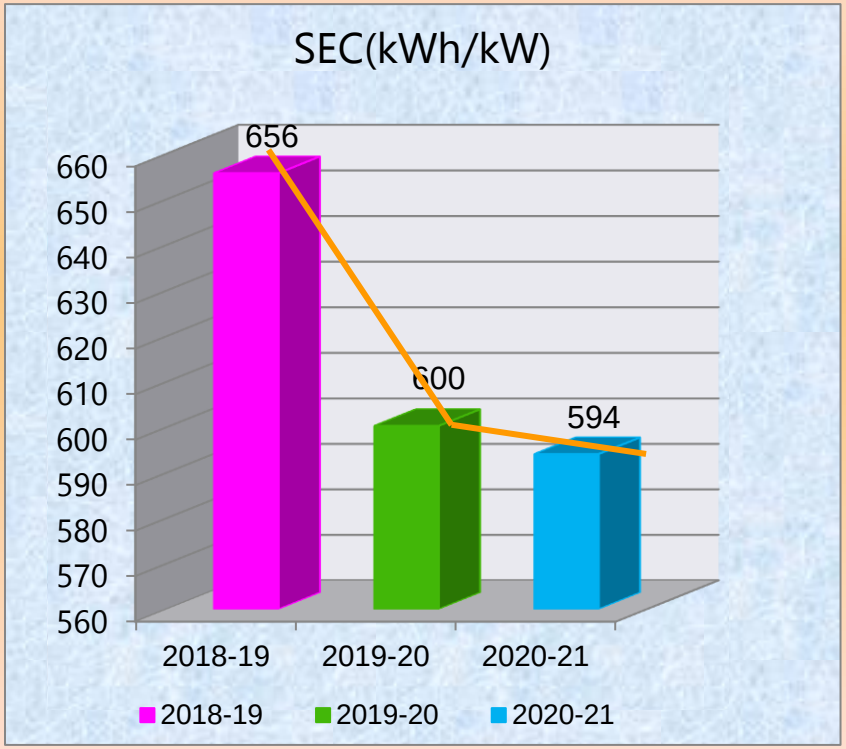
# Energy Consumption Scenario

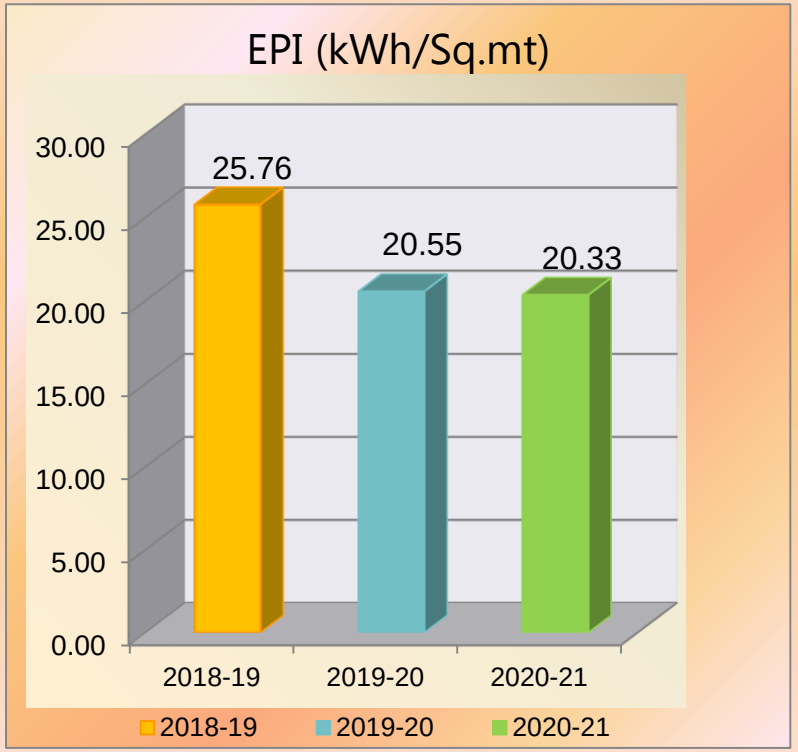
| Description | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|
| Consumption (kWh) | 188203 | 150084 | 148535 |
| Built-up Area (Sq.mt) | 7305.93 | 7305.93 | 7305.93 |
| EPI (kWh/Sq.mt) | 25.76 | 20.55 | 20.33 |
| SEC(kWh/kW) | 656 | 600 | 594 |




- ✓ Consumption has been reduced in 2020-21 by 21.07% compared to 2018-19.
- ✓ Consumption has been reduced in 2020-21 by 1.03% compared to 2019-20.

# Energy Parameters

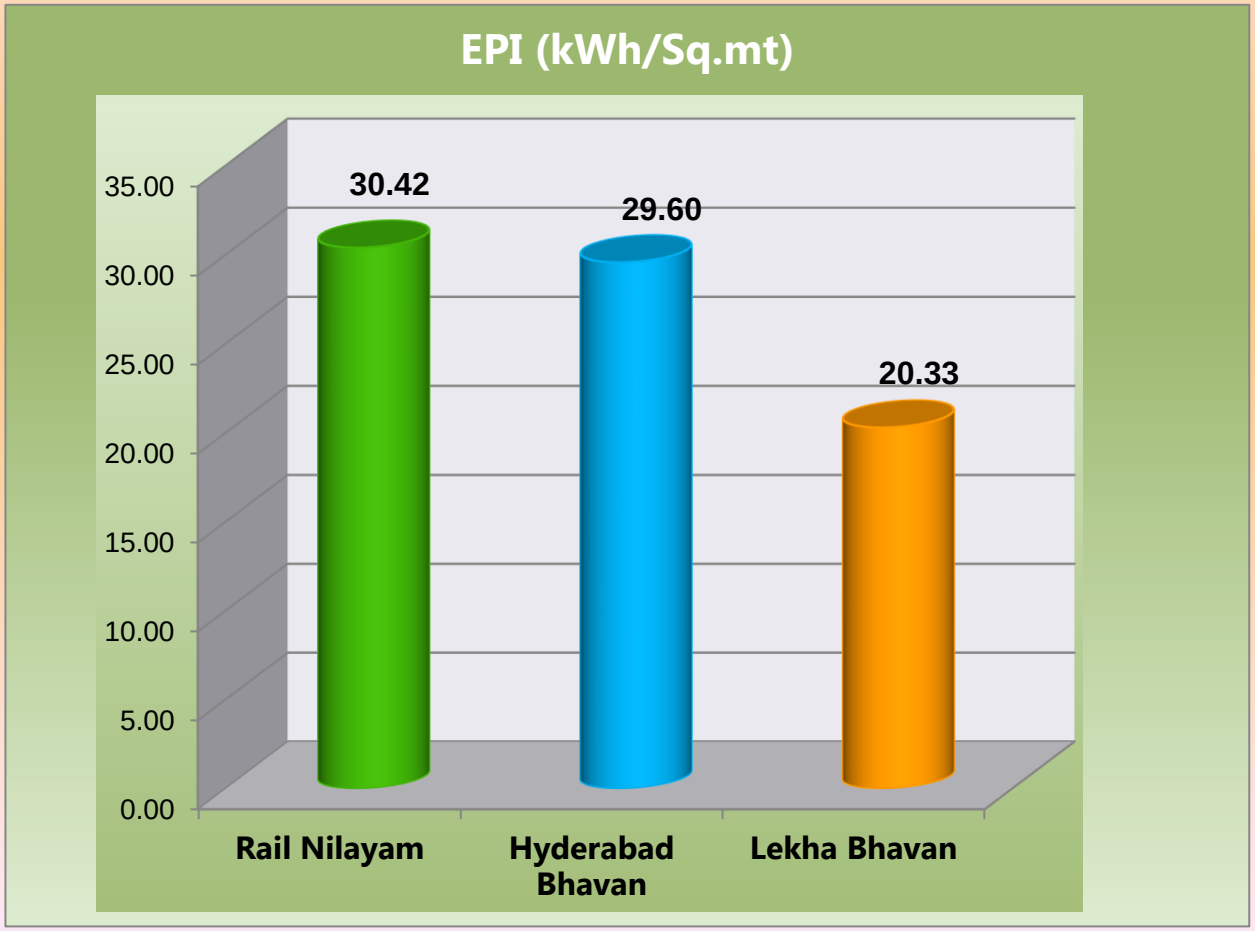



- ✓ **SEC has been reduced in 2020-21 by 1% and 8.53% compared to 2019-20 and 2018-19 respectively.**
- ✓ **EPI has been reduced in 2020-21 by 1% and 21% compared to 2019-20 and 2018-19 respectively.**

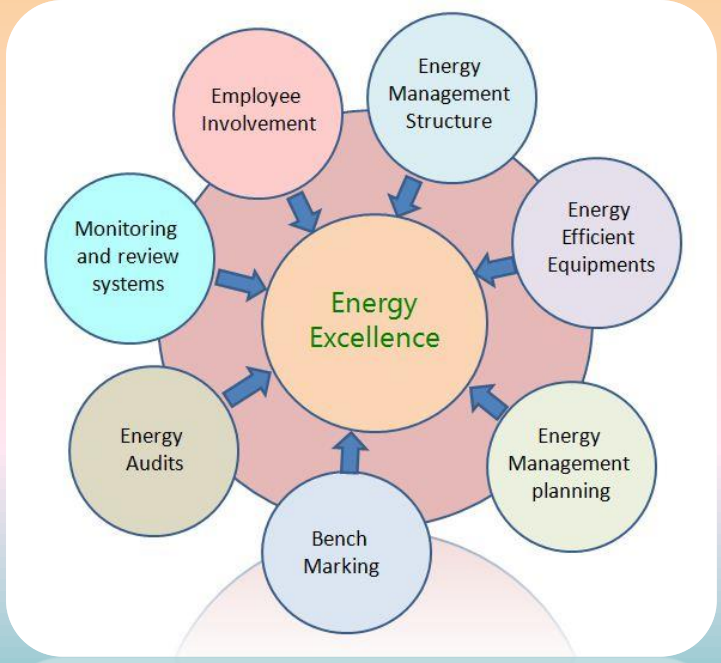
# National Benchmarking

Direct Competitors and National Benchmarking



# Achieving Energy Efficiency - A Multi Pronged Approach

- ✓ Targeted energy conservation action plan & Implementation.
- ✓ Low cost Innovation & use of new technology.
- ✓ Continuous energy monitoring and Corrections.
- ✓ Energy Audits by In House BEE Accredited Auditors.
- ✓ Renewable energy Initiatives.
- ✓ Very well maintained electrical equipment.
- ✓ Energy Conservation Week celebration and Mass Awareness Program.



# EnCON Projects Implemented from 2018-19 to 2020-21

# Energy Saving Projects 2018-19

Some of the major Energy Saving Projects implemented.

| Sl. No. | Project Description | Savings in Lakh Rs. | Investment in Lakh Rupees | Payback Period in years |
|---|---|---|---|---|
| 1 | 50 kWp Solar Power Plant (PPA Mode) | 1.77 | - | - |
| 2 | Energy Efficient AC units | 0.77 | 4.00 | 5.0 |
| 3 | Energy Efficient pump | 1.14 | 0.60 | 0.5 |
| 4 | Energy savers for AC units | 0.46 | 0.75 | 1.6 |
| 5 | Energy Efficient LED Lighting | 0.90 | 1.18 | 1.3 |

- **50 kWp on grid solar power plant contributes 32% of total energy consumption of the building during the year 2018-19.**

# Energy Saving Projects 2019-20

Some of the major Energy Saving Projects implemented.

| Sl. No. | Project Description | Savings in Lakh Rs. | Investment in Lakh Rs. | Payback Period in years |
|---|---|---|---|---|
| 1 | Super Energy Efficient BLDC fans | 0.32 | 1.68 | 5.2 |
| 2 | Energy Efficient Inverter type AC | 0.44 | 2.25 | 5.1 |
| 3 | Occupancy Sensors | 1.67 | 0.75 | 0.5 |
| 4 | Optimisation of Lifts | 0.26 | - | - |

- **50 kWp on grid solar power plant contributes 57% of total energy consumption of the building during the year 2019-20.**

# Energy Saving Projects 2020-21

Some of the major Energy Saving Projects implemented.

| Sl. No. | Project Description | Savings in Lakh Rs. | Investment in Lakh Rs. | Payback Period in years |
|---|---|---|---|---|
| 1 | BLDC ceiling fans | 0.70 | 1.00 | 1.4 |
| 2 | Energy Efficient Inverter type AC | 0.89 | 4.00 | 5.0 |
| 3 | Energy efficient BLDC pump | 0.29 | 0.65 | 2.2 |

- **50 kWp on grid solar power plant contributes 57.39% of total energy consumption of the building during the year 2020-21.**

# Innovative Projects Implemented

# Super Energy Efficient BLDC fans

290 Nos. conventional ceiling fans are replaced with super energy efficient BLDC fans.

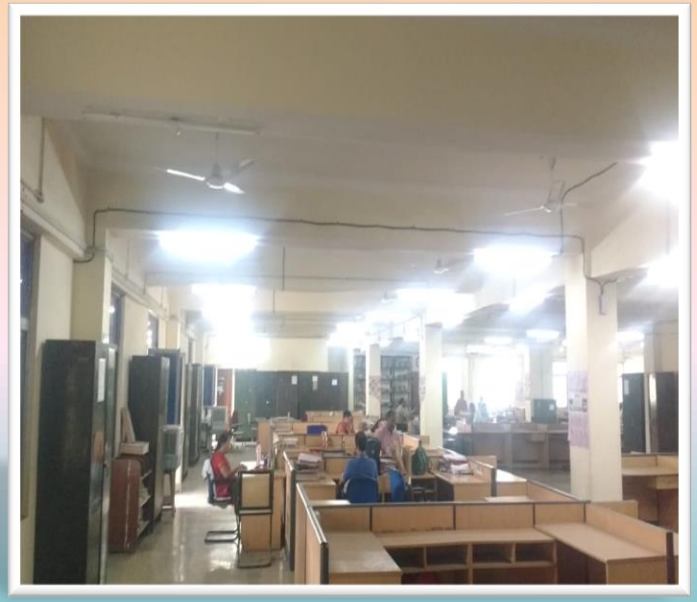
| Description | Unit | Value |
|---|---|---|
| Average consumption of conventional ceiling fans per day | kWh | 175 |
| Average consumption of BLDC fans per day | kWh | 81 |
| Average Difference consumption per day | kWh | 94 |
| Percentage of savings | % | 46 |
| Average monetary savings per annum | Rs. in Lakhs | 2.75 |

# Renewable Energy Utilization

| Year | Technology | Type of Energy | Onsite/ Offsite | Installed capacity | Generation in kWh | % of overall electrical energy |
|---|---|---|---|---|---|---|
| 2018-19 | Solar PV | Electrical | Onsite | 50 kWp | 58850 | 31.26 |
| 2019-20 | Solar PV | Electrical | Onsite | 50 kWp | 85668 | 57.08 |
| 2020-21 | Solar PV | Electrical | Onsite | 50 kWp | 85259 | 57.39 |

# Other Energy Conservation Measures

# 100% LED Lighting



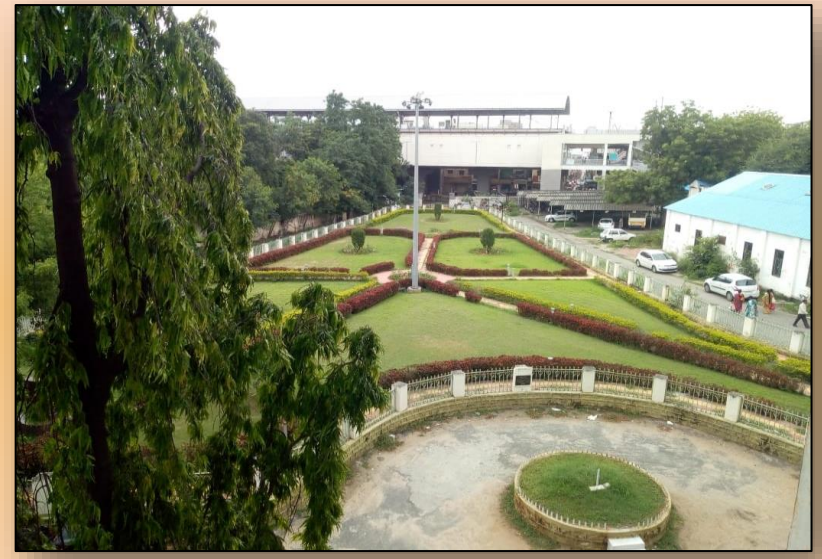
# Natural Day Light Pipe System

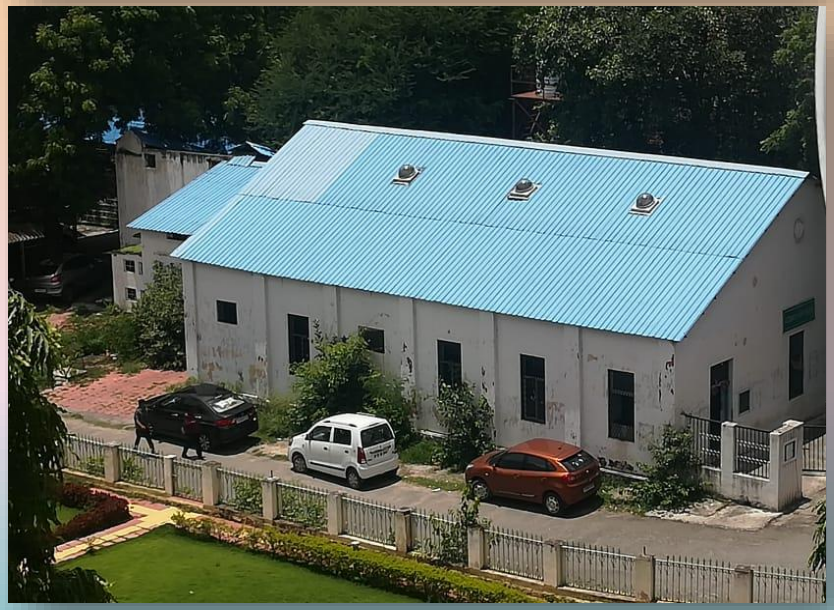
# Use of Occupancy Sensors & Energy Savers

# Green Initiatives and Features at Lekha Bhavan

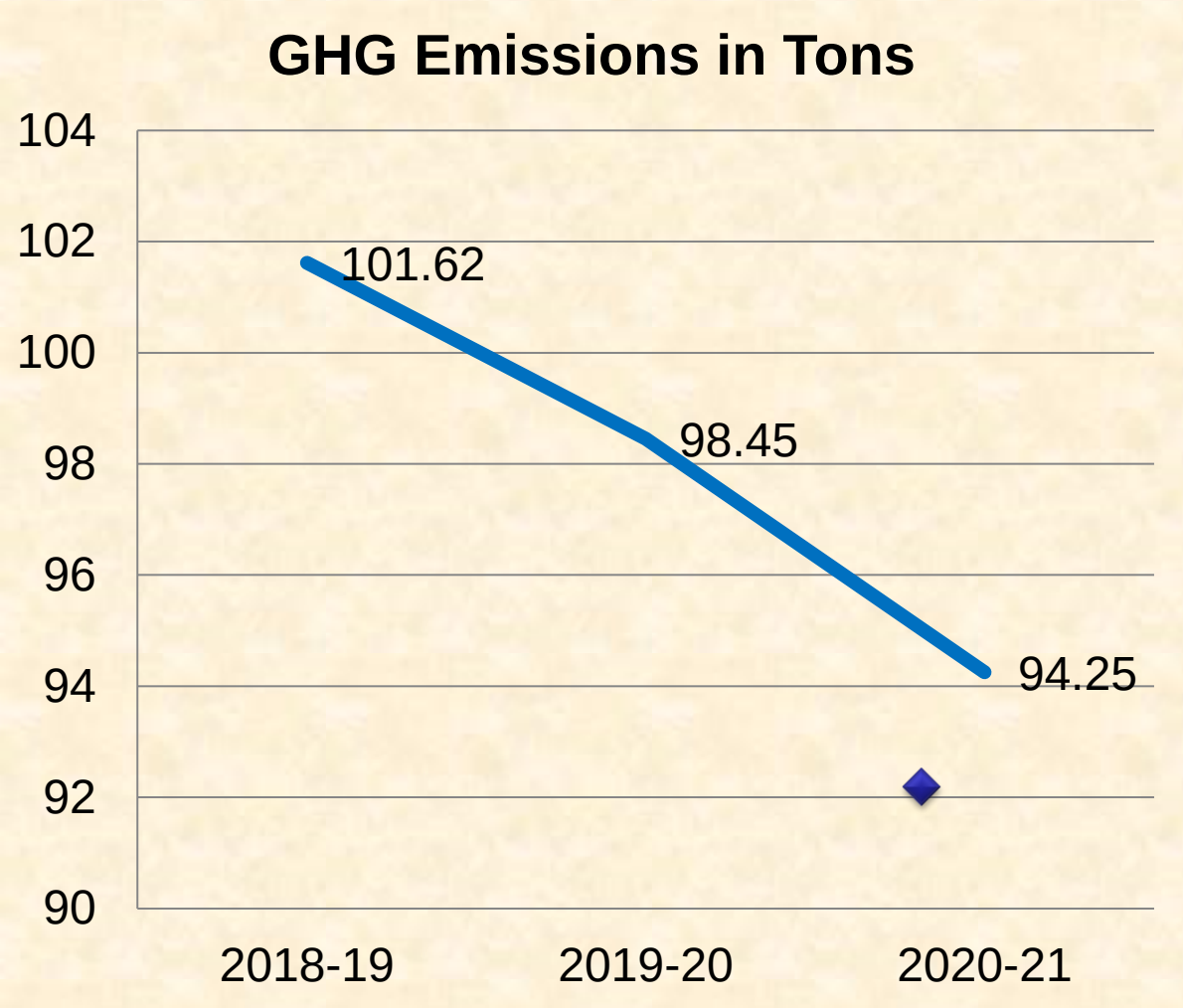
- Building has Green tree façade by Asoka (saraca-asoca) tree
- BIPV solar power plant
- Day light pipe system
- Sun control film on window pans
- Massive tree plantations
- e-office working system
- LED signage and name boards
- Occupancy indicators and display panels
- Pan IR video conference system
- In building potted plantation
- Segregation of waste and waste management

# Green Initiatives and Features





# GHG Emissions




- GHG emissions reduced by 7.25% from the last 2 years.

# Waste Management

- Building is provided with separate garbage bins for collection of dry and wet waste.
- EN & HM Department is educating the employees about segregation wet and dry waste.
- Daily collection and segregation of dry and wet waste from each floor and effective disposal of the same.

# Team Work, Employee Involvement & Monitoring


# Telangana State Energy Conservation Awards - 2020

- ✓ Lekha Bhavan Building has won **Silver Award** in Government Buildings category announced by TSREDCO, Government of Telangana for the year 2020.


# 21st National Awards for Excellence in Energy Management - 2020

✓ Lekha Bhavan Building has won **Energy Efficient Unit** Award by CII

CII

Confederation of Indian Industry

125 Years - Since 1895

**21st National Award for**

**Excellence in Energy Management 2020**

*This is to certify that*

**Lekha Bhavan, South Central Railway, Secunderabad**

*has been recognized as*

*"Energy Efficient Unit"*

*This acknowledgement is based on the evaluation by panel of judges at the "National Award for Excellence in Energy Management" held during 25 - 28 August 2020.*

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

# 20th National Award for Excellence in Energy Management - 2019

✓ Lekha Bhavan Building has won **Energy Efficient Unit** Award by CII

CII

Confederation of Indian Industry

**20th National Award for**
**Excellence in Energy Management 2019**

*This is to certify that*

**Lekha Bhavan**
**Secunderabad**

*has been recognized as*

*"Energy Efficient Unit"*

*This acknowledgement is based on the evaluation by panel of judges at the "National Award for Excellence in Energy Management" held during 16 - 18 September, 2019 at Hyderabad.*

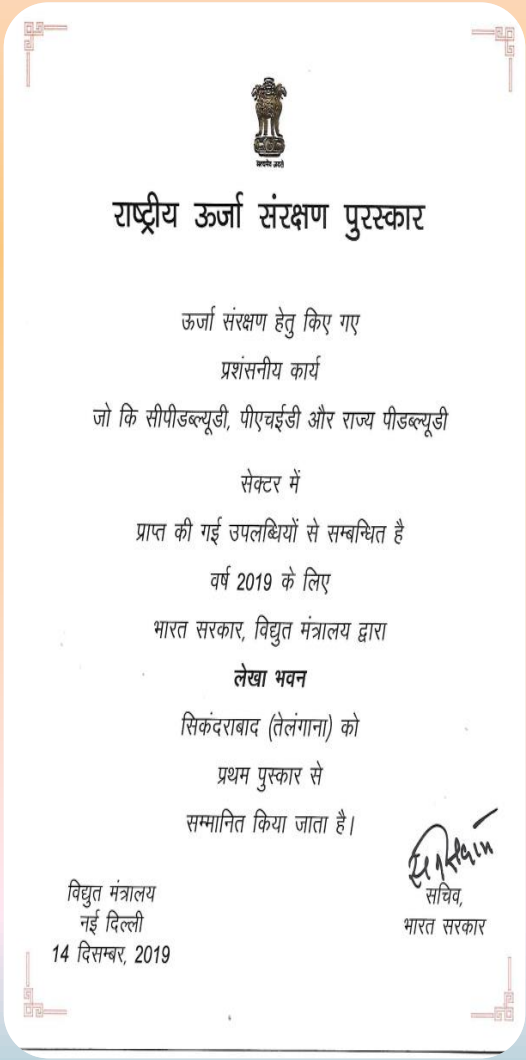
*S Raghupathy*
Deputy Director General
Confederation of Indian Industry

*Meher Pudumjee*
Chairperson, Energy Efficiency Council
CII - Godrej GBC


# National Energy Conservation Awards - 2019

✓ Lekha Bhavan Building has bagged **First Prize** in Office buildings Category by BEE





राष्ट्रीय ऊर्जा संरक्षण पुरस्कार

ऊर्जा संरक्षण हेतु किए गए

प्रशंसनीय कार्य

जो कि सीपीडब्ल्यूडी, पीएचईडी और राज्य पीडब्ल्यूडी

सेक्टर में

प्राप्त की गई उपलब्धियों से सम्बन्धित है

वर्ष 2019 के लिए

भारत सरकार, विद्युत मंत्रालय द्वारा

**लेखा भवन**

सिकंदराबाद (तेलंगाना) को

प्रथम पुस्कार से

सम्मानित किया जाता है।

विद्युत मंत्रालय
नई दिल्ली
14 दिसम्बर, 2019

सचिव,
भारत सरकार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# 50 kWp Solar Power Plant