



## Sabarmati Hostel, IIT Madras

|                                       |   |
|---------------------------------------|---|
| <b>Location</b>                       | : Sardar Patel Road, Adyar, Chennai                                 |
| <b>Site Area</b>                      | : 11726 m <sup>2</sup>  |
| <b>Built up Area</b>                  | : 17300 m <sup>2</sup>  |
| <b>Air-conditioned Area</b>           | : 0 m <sup>2</sup>  |
| <b>Non Air-conditioned Area</b>       | : 17300 m <sup>2</sup>  |
| <b>Typology</b>                       | : Residential   |
| <b>Energy consumption reduction</b>   | : 80.1% reduction in energy consumption compared to GRIHA benchmark |
| <b>Energy Performance Index (EPI)</b> | : 19.9 kWh/m <sup>2</sup> /annum                                    |
| <b>Renewable Energy</b>               | : Rated capacity of solar PV installed is 360 kWp                   |
| <b>GRIHA provisional rating</b>       | : 4 Stars   |
| <b>Year of Completion</b>             | : 2016  |

The following strategies were adopted to reduce the building impact on the natural environment:

### 📍 Sustainable Site Planning:

- Excavation and construction activities were completed prior to monsoon season to prevent soil erosion and soil run-off from project site.
- More than 100 trees were planted onsite as well as offsite to compensate the number of trees cut during construction.
- Utilities were planned in such a way that the efficiency of on-site circulation was optimized.
- More than 50% of hardscape area is shaded by trees.

### 📍 Water management:

- Efficient landscape design with manual irrigation resulted in reduction of more than 50% of landscape water demand.
- Reduction of 61.4% has been demonstrated on building water use by installing water efficient flush and flow fixtures.
- A centralized 4 MLD capacity SBR based sewage treatment plant is installed to treat waste water off-site and facilitate reuse of treated water for flushing and landscaping purpose.

### 📍 Energy Optimization:

- High efficacy lamps are installed for exterior lighting which is operated by timer controller.
- EPI reduction of 80.1% from GRIHA established EPI for office building has been demonstrated.
- ECBC mandatory clauses compliant lighting, HVAC and electrical power system have been implemented.
- 360 kWp solar PV panels have been installed to reduce use of electricity generated from fossil fuels.

### 📍 Waste Management:

- Multi-coloured bins have been provided on each floor level to collect and segregate waste at source.
- A dedicated place has been provided on site to store segregated waste prior to disposal.
- Sludge from sewage treatment plant is used as manure for landscape.

### 📍 Sustainable building materials:

- Fly-ash bricks have been used in the project to reduce embodied energy of the building.
- Use of low energy flooring, doors and windows has been adopted.

### Integrated Design Team:

|  |   |
|--|---|
| <b>Client</b>                                  | : M/s. Indian Institute of Technology Madras  |
| <b>Project Coordinator</b>                     | : Dr. M. Ramachandran   |
| <b>Principal Architect</b>                     | : M/s. C R N Architects & Engineers   |
| <b>Landscape Architect</b>                     | : M/s. Engineering Division of IIT Madras   |
| <b>Project Management Consultant</b>           | : M/s. Central Public Works Department  |
| <b>Electrical Consultant</b>                   | : M/s. Engineering Division of IIT Madras   |
| <b>Green Building Design and Certification</b> | : Air Design Engineered Solution Pvt. Ltd. & Innowell Engineering International Pvt. Ltd. |