



## Tunga and Bhadra Hostel, IIT Madras

<b>Location</b>	: Sardar Patel Road, Adyar, Chennai
<b>Site Area</b>	: 18614 m <sup>2</sup>
<b>Built up Area</b>	: 23104 m <sup>2</sup>
<b>Air-conditioned Area</b>	: 0 m <sup>2</sup>
<b>Non Air-conditioned Area</b>	: 18614 m <sup>2</sup>
<b>Typology</b>	: Residential
<b>Energy consumption reduction</b>	: 78.4% reduction in energy consumption compared to GRIHA benchmark
<b>Energy Performance Index (EPI)</b>	: 21.6 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.
- 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 59% of landscape water demand.
- Reduction of 61.7% 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 78.4% 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.