



Guest house building at IIT Bombay

Location	: Mumbai, Maharashtra
Site Area	: 7,671 m ²
Built-up Area	: 12,342 m ²
Air-Conditioned Area	: 7,903 m ²
Non-Air-Conditioned Area	: 4,439 m ²
Typology	: Commercial building
Energy Consumption Reduction	: 75.46% reduction in energy consumption compared to GRIHA benchmark
EPI	: 110.42 kWh/m ² /year
Renewable Energy	: Rated capacity of solar PV installed on site is 45 kWp
GRIHA Provisional Rating	: 4 Star Rating (Version: 3.1)
Year of Completion	: 2018

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

📍 Sustainable Site Planning:

- 388 m³ top soil was preserved within the campus and reused for landscaping.
- Site was screened with 3 m high barricading; wheel washing was provided for vehicles entering the site and water was sprinkled on site to control dust pollution.
- Out of 63 existing mature trees, 11 mature trees were preserved and in addition compensatory plantation of 195 trees was done on site.

📍 Water Management:

- Reduction of 50.98% from the GRIHA base case has been demonstrated in building water demand by installing water efficient fixtures.
- Reduction of 37.49 % from the GRIHA base case has been demonstrated in the landscape water demand.
- Gunny bags were used for curing structural columns and ponding technique was used for curing of slabs.

📍 Energy Optimization:

- For achieving visual comfort:
 - » 94% of the total living area is day-lit and meets the daylight factor as prescribed by NBC 2005.
 - » 100% of the outdoor lights have been connected with automatic switches.
- For achieving thermal comfort:
 - » EPI reduction of 75.46% from the GRIHA base case has been demonstrated through the integration of high-performance systems.
 - » Water cooled scroll chiller with IPLV 6.40 and COP of 4.45 have been installed which complies with ECBC.

📍 Renewable Energy Technology installed on Site:

- Solar Photovoltaic system of capacity 45kWp is installed on-site in the project for complying with the mandatory clause.

📍 Sustainable Building Materials:

- AAC blocks with 65% fly ash content by volume have been used in the project.
- Kota stone and vitrified tiles were used as a flooring material in the building.

📍 Waste Management:

- Multi-colored bins have been provided on each floor level to collect and segregate waste at source.
- Central waste collection area has been provided for storage of segregated waste on site.
- 100% of the organic waste will be sent to the centralized bio-methanation plant of 2-ton capacity that has been provided within the IIT campus.

Integrated Design Team:

Client	: IIT Bombay
Project Coordinator	: K Lakshminarayanan
Principal Architect	: SSA
Landscape Architect	: SSA
Project Management	: Shrikhande Consultants Pvt. Ltd.
Structural Consultant	: Mone Structural Consultant
Electrical Consultant	: Aecom
Green Building Design and Certification	: Ecofirst Services Limited