

Extension of Hostel 10 building at Indian Institute of Technology, Bombay

Location	: Mumbai
Site Area	: 5964 m ²
Built up Area	: 43124 m ²
Air-conditioned Area	: 69 m ²
Non Air- conditioned Area	: 43055 m ²
Typology	: Residential
Energy Performance Index (EPI)	: 48.23 kWh/m ² /year
Renewable Energy	: 6 kWp solar PV panel installation
GRIHA provisional rating	: 4 Stars
Year of completion	: 2016

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

📍 Sustainable Site Planning:

- Courtyard planning has been done.
- Top soil was preserved & reused within the site.
- 83 existing mature trees were preserved and 49 trees were successfully transplanted, of the total 133 trees present on site

📍 Water management:

- Building water consumption has been reduced by 41% from the GRIHA base case by installing water efficient fixtures and flushing systems.
- Strategies such as ponding for curing of slabs, use of wet hessian cloth for curing of columns and use of curing compounds were adopted during the construction to ensure efficient water use during construction.

📍 Energy Optimization:

- Energy Performance Index has been reduced by 51.77% compared to GRIHA benchmark.

📍 Visual comfort:

- Efficient lighting system has been installed in the building to ensure that the LPD levels are compliant with ECBC standards.
- Box windows have been provided in the building which will help in reducing the effective SHGC of the windows & ensuring glare free daylight in the interiors.

📍 Thermal comfort:

- AAC blocks have been used for the construction of interior and exterior walls to ensure higher thermal insulation.
- Mosaic tiles with high SRI (solar reflective index) have been laid on the terrace of the building to minimize heat gain through roof.

📍 Renewable energy technologies installed on site:

- 6 kWp rooftop solar photovoltaic system has been installed, which caters to the common area lighting load.
- Solar hot water system of 20,000 LPD has been installed on the roof top.

📍 Sustainable building materials:

- AAC blocks have been used for the construction of interior and exterior walls
- 42% of OPC has been replaced with fly ash (by weight) in structural concrete.
- All wardrobe shelves are made of unpolished Kota stone.
- Ceramic tiles with 8% recycled content have been used as flooring in all the habitable areas.
- Flush doors with 17% recycled content have been installed in all the rooms.
- Glass with 18% recycled content has been installed in all the windows.

Integrated Design Team:

Client	: IIT Bombay
Project Coordinator	: Mr. Laxminaryan K.
Principal Architect	: Sandeep Shikhre & Associates (SSA)
Landscape Architect	: Sandeep Shikhre & Associates (SSA)
Project Management Consultant	: KICONS Ltd.
Electrical Consultant	: AECOM
Green Building Design and Certification	: Ecofirst Services Limited

