BPCL Residential Building, (Block No. 39) Chembur

Location	:	BPCL staff colony Chembur, Mumbai
Site area	:	2,754 m^2
Built up area	:	8,000 m^2
Air-conditioned Area	:	4,740 m^2
Non Air-conditioned Area	:	3,260 m^2
Energy Consumption Reduction	:	71.49% reduction in energy consumption compared to GRIHA benchmark
EPI	:	47.90 KWh/ m^2/year
Renewable Energy	:	Rated capacity of solar PV installed on site is 15.84 KW
GRIHA provisional rating	:	4 Stars
Year of completion	:	2014

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

- **Sustainable Site Planning**
  - Barricading of site to prevent air pollution
  - Existing trees preserved and native species of trees planted
  - Top soil preserved and protected for later used
  - Adequate ventilation is provided to facilitate stack effect and thus maintain optimal thermal comfort in the non A/C public spaces.
  - Exemplary demonstration of site management practice by construction activities were confined to Pre-designated areas and minimum damage to the existing topography of site.
- **Reducing water consumption**
  - 69.18% reduction of building water consumption by installation of water efficient low-flow fixtures.
  - 79.70% reduction in landscape water consumption, by use of native shrubs and trees and efficient irrigation system. Minimal turf area is designed as turf being the maximum consumer of water.
  - By use of RMC and ponding techniques reduction in water consumption during construction.
- **Reducing energy consumption (compared to GRIHA benchmarks) while maintaining occupant comfort.**
  - Reduced Lighting Power density over ECBC prescribed values with the use of T5 and LED fixtures has helped in reducing the lighting consumption and also emit less heat which indirectly reduces the ac consumption of the dwelling units.
  - Glass installed has a Low SHGC value of 0.42 which in combination with the shading devices has reduced the heat gain into the building. The corresponding VLT of the glass also helps in bring in the diffuse light in the living spaces.
  - Walls are constructed using Autoclaved Aerated Concrete (AAC) block which has a low conductance value and has helped in reducing the heat transfer into the building.
- **Renewable energy technologies installed on site**
  - The renewable energy plant installed at site is 15.84 kwp solar photovoltaic grid connect PV system.
- **Use of low energy materials**
  - High grade steel & concrete has been adopted to optimize the embodied energy of the materials used in structural concrete
  - Materials with recycle content such as flyash brick are used for block work
  - Regionally available materials such as athangudi tiles are used in the project t
  - All the paints, adhesives & sealants used in the project are of Low VOC products.

Integrated Design Team

Client	:	Bharat Petroleum Corporation Limited, Mahul Refinery Mumbai
Project Coordinator	:	Mr. Anjaneyulu K (Ch. Estates Manager) BPCL
Principal Architect	:	CNA Architects, Mumbai, Ar. Rakesh Amin, Ar. Rajesh Kr Singh
Landscape Architect	:	CNA Architects, Mumbai & BPCL Horticulture Dept.
Project Management Consultant	:	CNA Architects, Mumbai
Structural Consultant	:	HDB Design Services Mumbai, Mr.Dwijen Bhatt
Electrical Consultant	:	NAT Engg. Consultants Mumbai
Green Building Design and Certification	:	Surmount Energy Solutions Pvt. Ltd. & CNA Architects