SABIC Research & Technology Pvt. Ltd.

Location : Sarjapura, Bangalore, Karnataka
Site area : 180773.0 m²
Built-up area : 17096 m² (B1, B3 and B5 block only)
Air-conditioned area : 11840 m²
Non-Air-conditioned area : 5256 m²
Energy consumption reduction : 19.38% reduction in energy consumption compared to GRIHA benchmark
EPI : 104 KWh/m²/year (Weighted Avg. of 3 blocks)
Base case Benchmark EPI : 129 KWh/m²/year (Weighted Avg. of 3 blocks)
Renewable Energy : Rated capacity of solar PV installed on site is 9 KW
GRIHA provisional rating : 4 stars
Year of completion : 2013

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

**Sustainable site planning:**
- Demonstration of exemplary site management practices through effective top soil preservation and storm water management during construction.
- Protection of existing trees at site during construction. In addition, tree transplantation & extensive re-plantation of native trees as part of landscape plan.
- Effective air pollution control strategies through site barricading, regular water sprinkling on loose soil, truck wheel washing and seeding the road banking.
- Initiatives for staff and construction workers' health, safety and sanitation include clean hygienic accommodation and toilet facilities, RO drinking water, crèche and schools for children of construction workers etc.

**Reducing water consumption:**
- Use of low flow plumbing fixtures and faucets to cut down water use inside the building by about 78% compared to GRIHA base case
- About 50% reduction in landscape water consumption by planting native species of trees and shrubs and by using efficient irrigation systems.
- 100% on site treatment of waste water generated through CETP plant installed and reuse of treated waste water for flushing & landscaping at site.

**Reducing energy consumption (compared to GRIHA benchmarks) while maintaining occupant comfort:**
- For achieving visual comfort:
  - Selection of high performance double glazing assisted with effective external shading to reduce solar heat gain and have glare-free daylight in lab and office areas.
  - ECBC compliant energy-efficient artificial lighting design.
- For achieving thermal comfort:
  - High performance building envelope, double glazing assisted with external shading and over deck roof insulation to cut down heat gains inside the building.
  - Efficient HVAC system with high COP water cooled screw chillers, heat pumps, heat recovery/exchanger mechanisms, AHUs with VAVs along with VFDs on motors etc. to minimize overall cooling energy consumption.
  - HVAC system designed in line with ASHRAE 55 to meet the thermal comfort requirements of the occupants.

**Renewable energy technologies installed on site:**
- 5.5 kwp of solar photovoltaic system is used to compensate part of internal lighting load
- Solar photovoltaic based outdoor lights of 3.5 kwp are installed on site.
- About 94% of annual energy for hot water requirement of B1, B3 and B5 block is saved by solar hot water system of 800 litres capacity installed at site.

**Use of low energy materials:**
- Portland Pozzolona cement (PPC) with 30% replacement by fly ash has been used in structural concrete, masonry blocks and plaster works
- Many of the interior finishes used in the project have recycled content within them and are procured locally within 800 kms from project site.

**Integrated Design Team:**
Client : Saudi Basic Industries Corporation (SABIC)
Project Coordinator : Mr Subrato Dey (SABIC)
Principal Architect : Venkataramanan & Associates, Bangalore
Landscape Architect : Design milieu, Bangalore
Project Management Consultant : Cushman & Wakefield
Structural Consultant : Nadig Consulting Pvt. Ltd
Electrical Consultant : PM engineering Services(India) Pvt. Ltd, Bangalore
Green Building Design and Certification : Eco 3 Design Consultants, Bangalore