



SABIC Research & Technology Pvt. Ltd.

Location	: Sarjapura, Bangalore, Karnataka
Site area	: 180773.0 m ²
Built-up area	: 17096 m ² (B1, B3 and B5 block only)
Air-conditioned area	: 11840 m ²
Non-Air-conditioned area	: 5256 m ²
Energy consumption reduction	: 19.38 % reduction in energy consumption compared to GRIHA benchmark
EPI	: 104 KWh/m ² /year (Weighted Avg. of 3 blocks)
Base case Benchmark EPI	: 129 KWh/ m ² /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:**
 - o 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.
 - o 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