



Fortis Shalimarbagh

Location	: New Delhi
Site Area	: 29000 m ²
Built up Area	: 21448 m ²
Air-conditioned Area	: 14338 m ²
Non Air- conditioned Area	: 7110 m ²
Energy Consumption Reduction	: 32% reduction from TERI GRIHA benchmark
EPI	: 305 KWh/ m ² /year
Occupancy hours	: 8760 hours / year
Final TERI GRIHA rating	: 3 Stars

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

- 📍 Sustainable Site Planning:
 - Temporary roads for construction purposes compacted using stone aggregate, sand and water bound macadam.
 - Water collected during de-watering in the excavation stage reused for air pollution control measures.
- 📍 Reduction in water consumption (compared to TERI GRIHA benchmark):
 - 57% reduction in building water consumption by using low-flow fixtures
 - 30% reduction in landscape water requirement by minimizing lawn area and planting indigenous species of trees and shrubs.
- 📍 Passive architectural design strategies adopted in the building:
 - Building orientation designed to gain maximum benefits.
 - Self-shading building block
 - The spindle shaped design reduces air pressure on the building surface. The building blocks and their location create an air channel between blocks.
- 📍 Reduction in energy consumption (compared to TERI GRIHA benchmark) while maintaining occupant comfort:
 - For achieving visual comfort
 - Adequate day lighting and glare control.
 - Lighting levels meet the recommended NBC and ECBC standards.
 - For achieving thermal comfort
 - Optimization of building design as per local climate of Delhi via sun path analysis, predominant wind direction, and existing vegetation.
 - ECBC compliant building envelope to reduce space conditioning loads in AC spaces and to meet thermal comfort in non-AC spaces.
- 📍 Renewable energy technologies installed on site:
 - 75% annual energy requirement for hot water met by solar thermal hot water systems.
- 📍 Use of low-energy/green materials:
 - More than 20% cement replaced with fly ash in Reinforced Concrete
 - More than 20% cement replaced with fly ash in plaster/masonry mortar

Building performance as per audit report:

- 📍 **Energy**
 - Final EPI achieved - 193 KWh/sqm/year.
 - Reduction in EPI from proposed case - 20%.
 - Thermal comfort is met as per NBC 2005.
 - Lighting lux levels are met as recommended by NBC 2005.
- 📍 **Water and waste**
 - Water test report indicates conformity to IS code 10500.
 - Total quantity of waste generated - Approx 306.2 Kg/day including bio-degradable, recyclable and hazardous waste.
- 📍 **Noise level**
 - Outdoor noise levels are within acceptable limits as per CPCB.
 - Indoor noise levels are within acceptable limits as per NBC 2005

Integrated Team:

Project Management	: RRA Project Management Pvt. Limited
Architect	: Mani Chowla Architects & Consultants
Landscape Architect	: Mani Chowla Architects & Consultants
Mechanical /Electrical/Plumbing Consultant	: Design Engineers Partners
Green Building Design and Energy Consultant	: The Energy and Resources Institute