



New Administrative Building for Indian Railway Institute of Civil Engineering, Pune

Location	: Pune
Site area	: 7,547 m ²
Built up area	: 7,912 m ²
Air-conditioned Area	: 3,137 m ²
Non Air-conditioned Area	: 4,775 m ²
EPI (Energy Performance Index)	: 35 kWh/ m ² /year
Renewable energy Installed on Site	: 30 kW of Solar PV and 10 kW of BIPV
Energy Consumption Reduction	: 75 % reduction from GRIHA Benchmark of 140 kWh/ m ² /year
Water Consumption Reduction	: 67% as per GRIHA Benchmark
GRIHA provisional rating	: 5 Star GRIHA Rating
Year of completion	: 2013

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



Sustainable Site Planning

- Site located in a developed urban locality maximizing closeness to basic amenities
- Existing trees were preserved and additional native trees were planted on site
- Top soil preservation for utilization in landscape
- Reduced hard paving on site and well shaded paved surface reducing heat island effect
- 100 % parking under basement



Reduction in Water Consumption

- Use of low flow fixtures to achieve 67 % water consumption reduction against GRIHA benchmark
- 100% waste water treatment on site
- Use of efficient drip and sprinkler irrigation system



Passive Architectural Design Strategies

- Internal space planning to minimize heat gain in regularly occupied space on each floor
- Provision of shaded atriums helping stack ventilation in common areas



Reduction in Energy Consumption (compared to GRIHA Benchmark) while maintaining occupant comfort

- Use of high SRI roof paint and 1.5 inch thick over deck insulation
- 14 inch thick fly ash double wall with 2 inch insulation
- High performance double glazed windows with low SHGC
- Maximizing the use of daylight thus minimizing use of artificial light
- Use of VRV based cooling system
- Most efficient LED and T5 lighting fixtures minimizing internal lighting load
- Use of occupancy and daylight sensors to minimize the energy wastes



Green Materials

- Use of fly ash bricks and fly ash based cement and concrete
- Use of local materials for walls, flooring, RMC etc
- Use of salvaged railway sleepers and wood for wall cladding and flooring
- Reuse of existing furniture from old building
- Gypsum based false ceiling

Integrated Design Team

Project Owner	: New Administrative Building for Indian Railway Institute of Civil Engineering
Project Construction Head	: Mr. Suresh Pakhare, Dy Chief Engineer Construction, Central Railway Pune
Principal Architect and	
Structural Consultant	: M/s Shashi Prabhu & Associates, Mumbai
Green Building Feasibility Study	: CII Godrej Green Business Centre
Sculpture and Signage	: Sir J. J. School of Arts, Mumbai
Energy Simulator	: M/s Conserve, Chennai
GRIHA Consultant	: M/s Inertia, Hyderabad