



Administration Building for GAIL Compressor Station

Location	: Chhainsa, Faridabad, Haryana
Site area	: 11161 m ²
Built-up area	: 2511 m ²
Air-conditioned area	: 801 m ²
Energy consumption reduction	: 20.30% reduction in energy consumption compared to GRIHA benchmark
EPI	: 66.95 kWh/ m ² /year
Renewable Energy	: Rated capacity of solar PV installed on site is 4 KWp
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:**
 - Top soil was preserved during the construction period and re-used for landscaping.
 - Construction activities were confined to pre-designated areas.
 - Construction activities were planned such that the excavation did not take place during monsoon to prevent soil erosion and soil runoff from the site.
 - Dust screens were provided around construction area to prevent air pollution
 - Hard paving was minimized and the net paved area was only 18.83% of the total site area.
 - Only native plant species have been used for landscaping.

- 📍 **Reducing water consumption:**
 - Around 68.8% of building water consumption was reduced by using low-flow fixtures.
 - Water consumption during construction was reduced.
 - Around 40.67% reduction of landscape water consumption was reduced by planting native species of trees and shrubs and by using efficient irrigation systems.
 - Waste-water was treated and re-used for landscape water requirement.

- 📍 **Reducing energy consumption (compared to GRIHA benchmarks) while maintaining occupant comfort:**
 - o For achieving visual comfort:
 - Window wall ratio (WWR) is limited to 30% for optimal day lighting in the internal spaces.
 - Energy efficient artificial lighting design is compliant with ECBC recommendations.
 - External shading devices and efficient glazing have been installed to reduce solar heat gain and enable glare-free daylight.
 - o For achieving thermal comfort:
 - Building envelope is ECBC compliant and helps in reducing the load in AC spaces and meets thermal comfort levels in non-AC spaces.
 - ECBC compliant energy efficient variable speed centrifugal chillers of rated capacity 34TR are installed in the building.
 - Lux and occupancy sensor-based controls are installed to reduce the energy consumption.

- 📍 **Renewable energy technologies installed on site:**
 - Solar panels have been mounted on the roof. Installed capacity of solar energy to meet space conditioning and internal artificial lighting loads: 4 KWp.
 - Solar street lights have been installed.

- 📍 **Use of low energy materials:**
 - Around 70% low energy material in flooring and 88.97% low energy material in doors and windows have been used in the building.
 - Use of flyash bricks in the walling system.
 - Around 30% OPC by weight is replaced with flyash in the structural concrete.
 - Around 30% OPC is replaced by flyash for masonry and plaster mortar.

Integrated Design Team:

Client	: Mr Satish Geda, GAIL (India) Ltd, New Delhi
Project Coordinator	: Mr Satish Geda, GAIL (India) Ltd, New Delhi Mr H K Malhotra (Projects), Engineers India Ltd, N. Delhi
Principal Architect	: Mr Snigdho Majumdar, Engineers India Ltd, New Delhi
Landscape Architect	: Ms Sumedha, Engineers India Ltd, New Delhi
Project Management Consultant	: Mr H K Malhotra (Projects Deptt.), Engineers India Ltd, New Delhi
Structural Consultant	: Structure Department, Engineers India Ltd, New Delhi
Electrical Consultant	: Electrical Department, Engineers India Ltd, New Delhi
Green Building Design and Certification	: Architecture Department, Engineers India Ltd, New Delhi
Green Bldg Consultant	: Anish Mahala, Architecture Department, EIL
HVAC Consultant	: Ajaz Ahmed, PED, EIL
Structural Consultant	: PK Gupta, Structures Department, EIL
Electrical Department	: Ms. Rashmi Singh, Electrical Department, EIL