Ministry of Environment, Forests & Climate Change
Government of India

Ministry of Environment, Forest & Climate Change (Govt. of India)

Indira Paryavaran Bhawan: Net zero energy green building

CASE STUDY

Summary

Indira Paryavaran building is a project of Ministry of Environment, Forest and Climate Change for construction of new office building at Aliganj, Jor Bagh Road, New Delhi. The basic design concept of the project is to make the net zero energy green building.

Objective of Intervention

The Building is planned to be a state of the art landmark building, with emphasis on conservation of natural areas and trees to reduce adverse environmental impact, provide adequate natural light, shaded landscaped areas to reduce ambient temperature, maximize energy saving system and minimize operation cost by adopting green building concepts, conservation and optimization of water requirement including reuse of water by recycling the waste water and also to make the building friendly to physically challenged.

Type of Intervention

Implementation of energy and water conversation measures to comply with GRIHA five-star certification and LEED Platinum rating

Description of Intervention

The energy conservation measures adopted are mentioned below:

- The IPB office building for the MoEF has been planned in two parallel blocks facing the north–south direction, with a large linear open court in the centre. The building blocks create a porous block form to optimize air movement throughout the site and the N–S orientation allows for optimum solar access and shading.
- Insulated Walls and EE double glass
- Operable windows in conditioned areas for utilizing the favourable outdoor conditions
- Direct line of sight to the outdoor environment to vision glazing for building occupants for more than 90 per cent of the occupied spaces
- EE T-5 and LED fixtures
- Pre-cooling of fresh air from toilet exhaust using heat recovery wheel in order to reduce load on chiller plant
- EE water-cooled chillers and double skin air handling units with variable frequency drives
- Chilled beam system for cooling
- Part condenser water heat rejection by geothermal mechanism. This will also help in water conservation in cooling towers for HVAC system
- Regenerative lifts
- Integrated building management system (IBMS) for optimizing energy consumption, performance monitoring, etc.

Water conservation measures are adopted in the building like low discharge water fixtures and dual flushing cistern, low demand plants in landscaping, drip irrigation system for green areas, make up water tank for chiller plant, irrigation, and rain water harvesting system which leads to saving in fresh water requirement.

Intangible or Tangible Benefit

- Overall 67 per cent reduction in energy consumption with reference to GRIHA benchmark of 140kWh/sqm/year has been achieved
- The building is an energy positive building as the energy generated through 930 kWp of solar PV system installed at IPB is more than the energy requirement of the building.
- The building has also achieved LEED India Platinum Rating and GRIHA five-star rating.

About MoEF & CC

The Ministry of Environment, Forest and Climate Change (MoEFCC) is the nodal agency in the administrative structure of the Central Government for the planning, promotion, co-ordination and overseeing the implementation of India's environmental and forestry policies and programmes.

The primary concerns of the Ministry are implementation of policies and programmes relating to conservation of the country's natural resources including its lakes and rivers, its biodiversity, forests and wildlife, ensuring the welfare of animals, and the prevention and abatement of pollution. While implementing these policies and programmes, the Ministry is guided by the principle of sustainable development and enhancement of human well-being.