High Rise Multi-storied Office Building in Unit-V

**Location**: Bhubaneswar, Odisha

**Site Area**: 33,588.90 m²

**Built-up Area**: 23,158 m²

**Air-Conditioned Area**: 3,131.50 m²

**Non-Air-Conditioned Area**: 20,020 m²

**Typology**: Commercial building

**Energy Consumption Reduction**: 78% reduction in energy consumption compared to GRIHA benchmark

**EPI**: 31 kWh/ m²/year

**Renewable Energy**: Rated capacity of solar PV installed on site is 5 kW

**GRIHA Provisional Rating**: 4 Star Rating (Version 3.1)

**Year of completion**: 2018

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

- **Sustainable Site Planning**:
  - Out of 23 existing trees, 22 trees were cut, 1 was preserved and 83 new trees were planted.
  - The utility services are consolidated and are planned along the roads for preventing unnecessary cutting and trenching of the site.
  - 699.5 cu.m top soil was preserved on site and reused for landscaping.

- **Water Management**:
  - Reduction of 56.69% form the GRIHA base case has been demonstrated in building water use by installing water efficient low-flow fixtures.
  - Reduction of 60.60% form the GRIHA base case has been demonstrated in landscape water demand through plantation of native and adaptive landscape species.

- **Energy Optimization & Occupant Comfort**:
  - Glass with 0.28 SHGC has been used in conditioned area and glass with 0.37 SHGC has been used in non-conditioned area.
  - EPI reduction of 78% from GRIHA benchmark has been demonstrated. Astronomical based control has been provided for external lighting.
  - 1000 kVA oil type transformer have been installed.

- **Renewable Energy Technology installed on site**:
  - Solar Photovoltaic system of capacity 5 kWp is installed on-site in the project for complying with the mandatory clause.

- **Use of low energy materials**:
  - Reduction of 87% in embodied energy of non-structural system of the building by using AAC blocks in external and internal walls.
  - 82% of the total internal doors and windows installed in the building is low energy.
  - Vitrified floor tiles and granite have been used in the project.

**Integrated Design Team**

- **Client**: Works Department, Government of Odisha
- **Project Coordinator**: L&T Construction
- **Principal Architect**: L&T Construction
- **Landscape Architect**: L&T Construction
- **Structural Consultant**: L&T Construction
- **Electrical Consultant**: L&T Construction
- **Project Manager**: L&T Construction
- **Green Building Design and Certification**: L&T Construction