



India's First Net Energy Plus Building

CSERC Office Building at RAIPUR



Constructed by : C.G. Housing Board

Design & Consultant : Chhattisgarh State Renewable Energy Development Agency

Chhattisgarh State Electricity Regulatory Commission (CSERC) Office Building

Location	–	Shanti Nagar, Raipur
Site Area	–	2400 m ²
Built-up Area	–	2072 m ²
No. of Floors	–	03
Gross Carpet Area	–	1675 m ²
Basic Architectural Signature	–	South West Umbrella.
Air Conditioned Office Carpet Area	–	670 m ²
Air Cooled Office Carpet Area	–	285 m ²
Carpet area of service spaces like toilets, passages, stair, lobby, stores, pantry, porches, etc. which is not conditioned	–	563 m ²
Non - Conditioned Office Carpet Area	–	Nil
Occupancy Hours	–	Day Time / 2900 hrs / Year
Total AC Installation	–	59.5 TR
Cooling Option	–	Evaporative Type
R. E. System Installed at Site	–	80 KW SPV Power Plant
Total Annual Power Generation from 80 KW SPV plant	–	86308 KWh
Import from CSEB Grid	–	53416 KWh / annum
Gross Energy Consumption	–	105826 KWh / annum
Gross Energy Performance Index (EPI)	–	25.85 KWh / m ² / annum
Net Energy Performance Index (EPI)	–	(-) ¹⁵ KWh / m ² / annum.
B. E. E. Rating – 5 Star.		

Energy Consumption Reduction

- Conductive through wall and roof insulation
- Local available materials are only used
- Maintenance oriented double glazing avoided and thermo cool are used instead of PUFF / expanded polystyrene
- Passive solar facilities adopted for low heat flow rate

Water Consumption Reduction

- Roof top rain water harvesting, zero water discharge (except surface rain water which is discharged to street drain)

The following strategies were adopted to reduce the impact of the building on natural environment and energy consumption reduction:

- Sustainable Site Planning.

- Reduction in water consumption.
- Reduction in energy consumption while maintaining occupant's visual and thermal comfort.
- Passive Architectural Design strategies adoption in building.
- Renewable energy technology installation at site.
- Use of low-energy/waste for construction.

Owner :

Chhattisgarh State Electricity Regulatory Commission (CSERC), Raipur

Executing Agency:

Chhattisgarh State Housing Board (CGHB), Raipur.

Project Visualizer, Coordinator and Formulator:

Mr. S. K. Shukla (Director, CREDA)

Architects and Energy Efficiency Designs:

Mr. Tara Prasad Dhal

(M/s The Design Group, 35 Surya Nagar, Bhubaneswar.

Ph: 0674-2397318, 2397386)

Structural Consultants:

Mr. Deepak Sanodya (M/s GEC Consultants, Raipur)

Renewable Energy Installation:

Mr. Sanjeev Jain (Chief Engineer, CREDA)

Site Engineers:

Mr. A. M. Mandal (Executive Engineer, CGHB)

and Mr. B. L. Verma (Assistant Engineer, CGHB)

Total Project Cost:

Civil Infrastructure - ₹ 3,76,00,000/-

Renewable 80 KW SPV - ₹ 1,24,92,000/-

Total - ₹ 5,00,92,000/-

Implementation Period: 2007- 2010.

Achievements:

- Chhattisgarh's 1st BEE- 5 Star rated building
- India's 1st Net Energy Plus Govt. building
- Only Indian Building show cased in the Third (WGCC) International Conference on Clean Energy and Climate Change from 27.10.2011 – 31.10.2011 at London, U.K.
- Recipient of India Tech Award-2012 as most Energy Efficient Building of India.

OTHER ENERGY EFFICIENT BUILDING DESIGNED BY CREDA IN CHHATTISGARH



Beverage Corporation, Raipur



Chips Data Centre, Raipur



CG Vyapam, Raipur



CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY

(Dept. of Energy, Govt. of Chhattisgarh)

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