



## ITC Mud Fort

<b>Location</b>	: 8, Jeevanahalli Main Road, Maruthiseva Nagar, Bengaluru
<b>Site Area</b>	: 7673.15 m <sup>2</sup>
<b>Built-up Area</b>	: 13875 m <sup>2</sup>
<b>Air-Conditioned Area</b>	: 3889.2 m <sup>2</sup>
<b>Non-Air-Conditioned Area</b>	: 1288.6 m <sup>2</sup>
<b>Typology</b>	: Residential
<b>Energy Consumption Reduction</b>	: 30.9% reduction in energy consumption compared to GRIHA benchmark
<b>Energy Performance Index (EPI)</b>	: 58.7 kWh/m <sup>2</sup> /year
<b>Renewable Energy</b>	: Solar water heater of 6.5 kL capacity installed on site with a potential of saving 47677 kWh per year
<b>GRIHA Final Rating</b>	: 5 Stars
<b>Year of Completion</b>	: 2017

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

### ☛ Solar Passive Design Strategies:

- Well-designed balconies have been provided along the façade to avoid solar radiation and heat ingress.
- Adequate window to wall ratio has been maintained in the project which allows cross ventilation and 75% day-lighting.
- Concrete wall offering a U-value of 0.39 W/m<sup>2</sup>K adds to the overall energy savings. Overall building envelope is ECBC compliant.
- The architecture of the building with a central courtyard allows for a seamless flow of wind across the site.
- Apart from green spaces on the ground, the project has also provided green spaces at different levels with terrace gardens adding to the thermal comfort.

### ☛ Sustainable Site Planning:

- 3 meters high barricading was constructed all around the site to prevent air pollution.
- Out of the 49 existing trees, 7 trees were cut and 22 new trees were planted which are native to the region.
- More than 50% paved area uses high SRI pavers.
- Openings have been designed in the building to maximize cross ventilation.

### ☛ Water management:

- Reduction of more than 59% from the GRIHA base case has been demonstrated in landscape water demand through use of highly efficient drip irrigation system.
- Reduction of 60% from the GRIHA base case has been demonstrated in building water use by installing water efficient flush and flow fixtures.
- Total fresh water demand of the building is reduced by 89% because of circulation of recycled waste water for various building activities.

### ☛ Energy Optimization:

- High efficacy lamps are installed for exterior lighting which is operated by timer controller.
- Energy consumption is reduced to 31% as against the GRIHA benchmark. Building is equipped with efficient LEDs and BEE 5-star rated air conditioners in the interiors.
- EPI reduction of 34.3% from GRIHA benchmark has been demonstrated.
- 68.5% of the habitable spaces are day lit and meet the daylight factors prescribed by the National Building Code of India.

### ☛ Renewable Energy Technology installed on site:

- Solar water heater of 6.5 kL capacity is installed in the building which has a saving potential of 47677 kWh per year amounting to 73% savings as against conventional energy consumption.

### ☛ Waste Management:

- Multi-colored bins are used in the building for segregation of dry and wet waste.
- Demarcated segregated space has been allocated for collecting waste from the entire building before transferring it to the recycling/disposal stations.

### ☛ Sustainable Building Materials:

- Pozzolana Portland Cement (PPC) and Gyproc plaster indicating use of 30% fly-ash content by weight has been used in plaster and masonry mortar.
- Low embodied energy materials are used for building construction.

### Integrated Design Team:

<b>Client</b>	: ITC Limited
<b>Project Coordinator</b>	: Central Projects Organisation, ITC Limited
<b>Principal Architect</b>	: M/s CnT Architects
<b>Landscape Architect</b>	: M/s OIKOS Studios
<b>Project Management Consultant</b>	: Central Projects Organisation, ITC Limited
<b>Structural Consultant</b>	: M/s isa –Structural Studio
<b>Electrical Consultant</b>	: M/s AECOM
<b>Green Building Design and Certification</b>	: M/s Environment Design Consultant Pvt. Ltd.

Building performance as per audit report

#### Energy:

- Final EPI achieved - 20.66 kWh/sqm/year.
- Reduction in EPI from proposed case- 62.94%
- Thermal comfort is met as per NBC 2005.
- Artificial lighting lux levels are met as recommended by NBC 2005.

#### Water and waste:

- Water test report indicates conformity to IS codes.
- Water consumption in building - 6,811.74 kL/annum

#### Noise level:

- Outdoor noise levels are within acceptable limits as per CPCB.
- Indoor noise levels are within acceptable limits as per NBC 2005.