



## CASE STUDY: IBM – Manyata Embassy Business Park



### KEY PARAMETERS

Occupancy Type	Office Space
Built up area	3,48,784 Sq ft
Completed	December 2011
Location	Bangalore
Green consultant	En3 Sustainability Solutions
Rating System	LEED CI v 2009
Rating Achieved	PLATINUM

### LEED SCORES



The IBM interior space in the G1 building of Manyata Embassy Business Park is entirely compliant with LEED requirements and has been awarded LEED Platinum under CI v2009 from USGBC. The base building G1 is also going to be a LEED certified building and is pursuing LEED CS Gold certification. The IBM interior project space comprises of Office, Lobby, Restaurant and Cafeteria. IBM is an environmentally responsible organization and is always striving to protect the environment and has taken enormous efforts along with En3 to implement various sustainability and green measures within its interior space.



**SITE SUSTAINABILITY FEATURES**

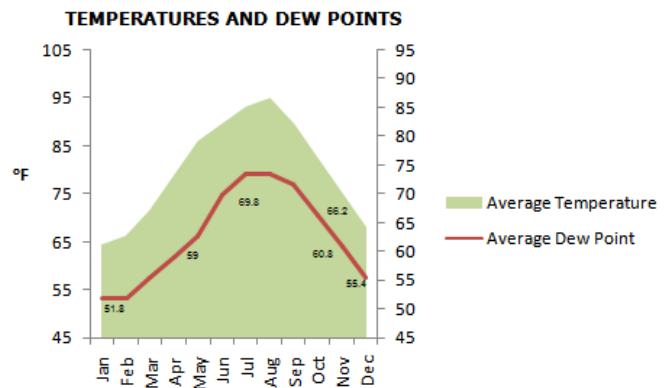
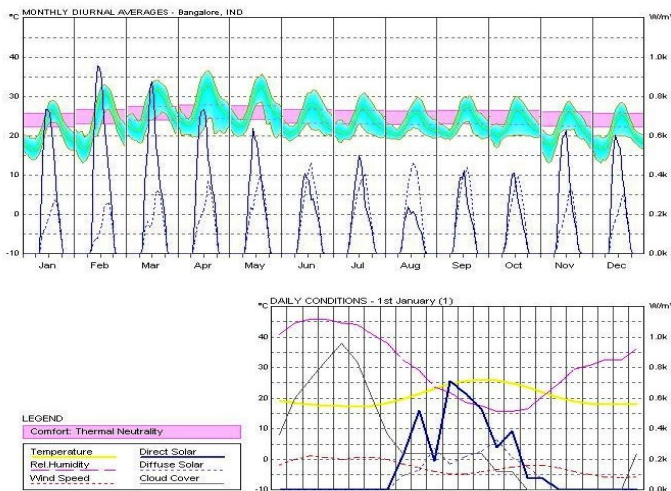
- The project is in ideal location with close proximity to public transportation thereby minimizing transportation pollution and strain on local infrastructure, protects green-field site and preserve habitat and natural resources.
- Provision of Bicycle and Shower facility for their staff reduces pollution and land development impacts from automobile use.
- Carpooling spaces within the premises in an effort to promote and ride sharing to reduce transportation pollution as well as strain on the local infrastructure.
- The base building landscaping and irrigation systems have been designed to reduce potable water consumption for irrigation by 100% from a calculated baseline case and 63% in total water use
- 100% of the base building on-site parking is located underground or under cover. This will create more open spaces on the ground and also reduce the local heat island effect.

**WATER EFFICIENCY**

- Water plays an integral part in the greening process of the IBM-G1.
- The project has reduced potable water use by 53% from the calculated baseline design fixture performance requirements established by the Energy Policy Act of 2005 through the installation of low flow urinals, showers, kitchen faucets, flush water closets

**ENERGISING THE BUILDING**

- Provision of high reflective material on roof, high performance glazing, efficient HVAC design, AHU's with VFD and Heat recovery in the base building, has contributed to HVAC energy savings of about 30.184% over conventional building HVAC systems.
- Selection of CFC free and HCFC free refrigerants avoids global warming and ozone depletion.
- Light fixtures and efficient lighting design contribute to 44.92% of reduction in connected lighting power density over the base case of ASHRAE standards with the interior spaces achieving a lighting power density as low as 0.61 watts/square feet.
- Provision of day lighting sensors within 15 feet throughout the periphery of the building has been installed in all regularly occupied spaces. This controls the artificial lights.
- About 76.22% of the equipment and appliances such as Monitors, CPU, Projectors, Refrigerators, Printers, plotters are ENERGYSTAR rated.
- Metering equipments have been installed for monitoring the energy use in the building such as EB and DG energy monitoring, individual meters for common area lighting, lifts, chillers, pumps, office area lighting, power and AHUs independently for each tenant, measuring chilled water consumption for each tenant using BTU meters for the ongoing accountability and optimization of building energy and water consumption performance over time.





## ***RESOURCE MANAGEMENT***

- The project has diverted 79.43% of the on-site generated construction waste from landfill.
- The project has achieved a combined recyclable content value of 11.85% of total material by cost thereby reducing virgin material exploitation.
- 23.04 % of the total building materials value including building materials and products has been manufactured within 500 miles of the project site and 16.64% of the total building materials value including building materials and products has been extracted within 500 miles of the project site.
- Rapidly Renewable materials account for 15.06% of the project's material cost. Special emphasis has been made to use these rapidly renewable materials to reduce virgin material exploitation.

## ***INDOOR ENVIRONMENTAL QUALITY***



- In order to support enhanced IAQ and long-term well-being of all occupants, 76% more than the minimum ventilation rates as per ASHRAE standards have been provided.
- The entire building is a non-smoking building thereby ensuring the health and safety of all its occupants.
- Low emitting adhesives, paints, carpets and composite wood products have been used to enhance the indoor environment and provide superior workplace for all employees.
- All system seating and furniture used in the project reduce indoor air contaminants that are odorous, potentially irritating and/or harmful to the comfort and well-being of installers and occupants
- Provision of MERV13 filters and 3M dust removal mats at all building entrances minimizes the exposure of building occupants to potentially hazardous particulates, biological contaminants and chemical pollutants that adversely impact air and water quality.
- Provision of a thermally comfortable environment that supports productivity and well-being of all building occupants.

En3 would be glad to answer any queries or questions you have on any green or sustainability related topics. Feel free to contact us at [info@en3online.com](mailto:info@en3online.com) and for more information visit us at [www.en3online.com](http://www.en3online.com).