



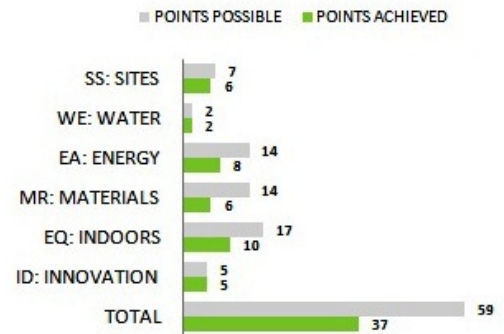
CASE STUDY: YAHOO SOFTWARE DEVELOPMENT INDIA



KEY PARAMETERS

Occupancy Type	Office Space
Built up area	280000 Sq ft
Completed	June 2011
Location	Bangalore
Green consultant	En3 Sustainability Solutions
Rating System	LEED USGBC CI
Rating Achieved	GOLD

LEED SCORES



The Yahoo development center in Bagmane Tech Park in Bangalore has been awarded Gold certification under USGBC's LEED ID+C rating system.



SITE SUSTAINABILITY FEATURES

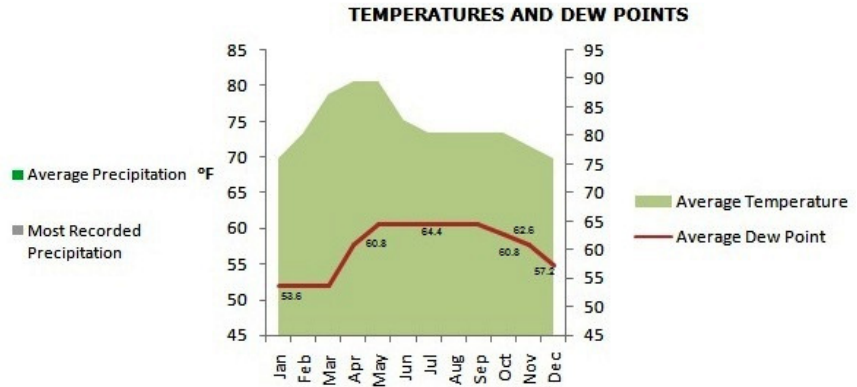
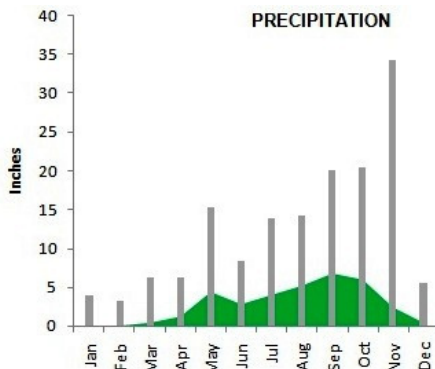
- The project is in ideal location with close proximity to public transportation thereby minimizing transportation pollution and strain on local infrastructure, protects green-field site and preserve habitat and natural resources.
- 100% of the roof surface has a Solar Reflectance Index of 90.7 (low-sloped area) and 79 (steep-sloped area).
- 100% of the gray-water generated from the building has been reused for landscaping purposes thereby reducing the potable water use for landscaping by 100%
- Provision of Bicycle and Shower facility for their staff reduces pollution and land development impacts from automobile use.
- 12 alternative-fuel refueling stations have been provided on site which represents 3.17% of the total on-site parking.
- 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.
- 100% of the wastewater has been treated to tertiary standards for use in landscape watering and toilet flushing
- Car parks in the basement 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 YAHOO DEVELOPMENT CENTER.
- Low flow dual-flush toilets, sensor based urinals and other low flow fixtures have installed reduced water consumption by over **55.65 %**.
- Wastewater will be treated onsite to tertiary standards.

ENERGISING THE BUILDING

- Provision of high reflective material on roof, high performance glazing, efficient HVAC design, has contributed to energy savings of about **21.71%** over conventional building and HVAC systems.
- Selection of CFC free and HCFC free refrigerants avoids global warming and ozone depletion.
- Light fixtures and efficient lighting design contribute to **39.93%** of reduction in connected lighting power density over the base case of ASHRAE standards.
- 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.
- 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 achieved a combined recyclable content value of 10.22% of total material by cost thereby reducing virgin material exploitation.
- 29.74% of the total building materials value is comprised of building materials and / or products that have been manufactured within 500 miles of the project site and 10.33% of the total building materials value is comprised of building materials and / or products that have been extracted, processed and manufactured within 500 miles of the project site.
- Rapidly Renewable materials account for 5.62% of the project's material cost.

INDOOR ENVIRONMENTAL QUALITY



- A CO2 sensor is installed within each densely occupied space. Additionally, outdoor airflow measurement devices have been installed and are capable of measuring the minimum outdoor airflow rate at all expected system operating conditions within 15% of the design minimum outdoor air rate.
- Low emitting adhesives, paints, carpets and composite wood products have been used to enhance the indoor environment and provide superior workplace for all employees.
- The project conducted a flush-out prior to occupancy by supplying a total air volume of 14,000 cubic feet of outdoor air per square foot of floor area while maintaining an internal temperature of at least 60 degrees F and relative humidity no higher than 60%
- 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.

NOVELTIES

Eco-friendly housekeeping – use of environment friendly housekeeping practices by using bio-degradable chemicals, addresses health, hygiene and well-being of maintenance staff & building occupants. The building has been designed by En3 to showcase various green and sustainability measures and practices and the effort is to create greater awareness on green concepts and sustainability to all its visitors and occupants & spearhead the green movement in the state and the country.

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 and for more information visit us at www.en3online.com.