En3
Engineering | Environment | Energy

CASE STUDY: EMBASSY TECH SQUARE, BLOCK A

KEY PARAMETERS

Occupancy Type	Technology Park
Built up area	276264 Sq Ft
Completed	February 2012
Location	Bangalore
Green consultant	En3 Sustainability Solutions
Rating System	LEED India CS version 1.0
Rating Achieved	**GOLD**

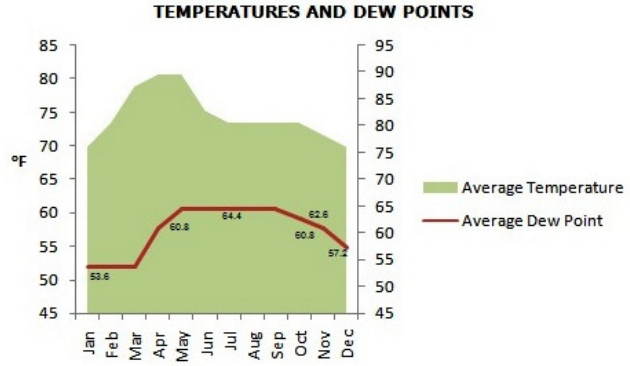
Embassy Tech Square, Bangalore, an environment friendly green Tech Park, which not only saves energy and cooling costs but also gives more lung space and natural light for employees working there. En3 has done innovative work to help Technology Park get greener and achieve its LEED GOLD certification from the Indian Green Building Council.

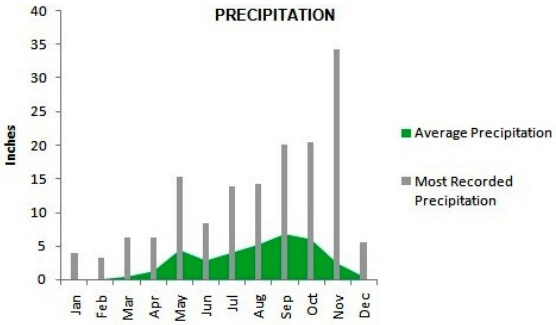
SITE SUSTAINABILITY FEATURES

- The project is in an ideal location with close proximity to public transportation thereby minimizing transportation pollution and strain on local infrastructure.
- Alternate Refueling stations with parking facilities promotes the usage of alternate fuel vehicles thus reducing pollution due to transportation as well as strain on local infrastructure
- 26 preferred carpool/ vanpool parking spaces have been provided accounting for 5.06% of the total parking capacity
- 100% of the car parks are covered which will create more open spaces on the ground and also reduce the local heat island effect.
- Provision of high reflective albedo roofing for 75% of the roof surface thus reducing urban heat island effects.

WATER EFFICIENCY

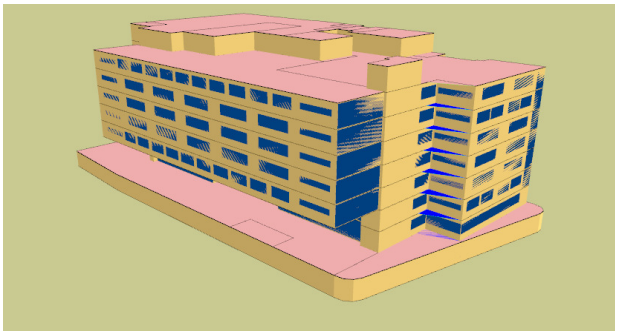
- The project is treating grey water onsite and this treated water caters to 100% of the irrigation requirements for plants. Native and Adaptive species have been planted that minimize the irrigation water requirements. The project will use only treated water from common STP of 250 KLD capacity.
- 100% of cooling tower make-up water requirement will be met by treated water from STP
- Special efforts have been taken to minimize water use by installing water efficient fixtures**.**
- Low flow dual-flush toilets, sensor based urinals and other low flow fixtures have been selected to reduce water consumption by over 48.36**%.**

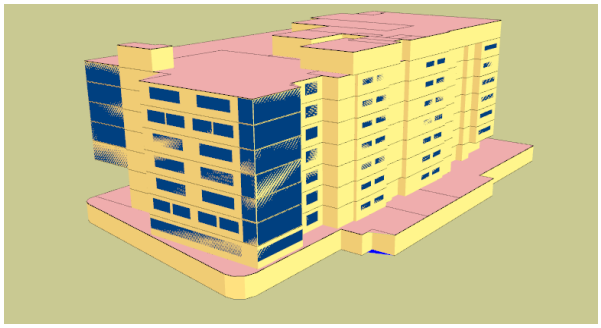




ENERGISING THE BUILDING

- In line with international standards, the refrigerants used in the air conditioning system and fire suppression systems are environmentally friendly and have very low ozone depleting and global warming potential
- The project has achieved 15% energy cost reduction in proposed design by incorporating Energy Conservation Measures including exterior and interior lighting power density and high efficiency chillers
- A detailed metering system ensures adequate measurement and monitoring of all building systems to continuously monitor the building post-occupancy as well
- A detailed energy analysis and modeling has been done to ascertain various options for energy savings with cost-benefit/payback analysis including Energy efficient Air Conditioning System (HVAC) using high efficiency Water Cooled Chillers, Air Handling Units (AHUs), in-built Variable Frequency Drives (VFDs) and Heat Recovery wheels





RESOURCE MANAGEMENT

- The project has ensured up to 97.83% of total construction waste of debris has been recycled or reused thereby diverting them from landfills.
- The project has achieved a combined recyclable content value of 12.3% of total material by cost thereby reducing virgin material exploitation.
- About 62.59% of the total material cost was manufactured within 800 km thereby reducing the pollution due to transportation
- 57.19% of the total project's materials by cost were extracted, harvested or recovered within 800 km of the project site

INDOOR ENVIRONMENTAL QUALITY

- Ventilation System is designed to provide 30% more fresh air than ASHRAE 62.1 2004 requirements.
- A permanent CO2 monitoring system providing feedback on ventilation system performance to ensure that ventilation systems maintain design minimum ventilation requirements has been installed
- In order to support enhanced IAQ and long-term well-being of all occupants, adequate fresh air has been planned in line with international ASHRAE standards
- Low emitting adhesives, paints and carpets have been used to enhance the indoor environment and provide superior workplace for all employees.
- Provision of a thermally comfortable environment that supports productivity and well-being of all building occupants.

NOVELTIES

- 57.19% of the total project's materials, based on cost, were extracted, harvested or recovered regionally.
- Green housekeeping program includes details such as purpose & requirement of green housekeeping, selection of eco-friendly chemicals, Procedural requirement for operational staff, training & implementation, cleaning procedure, thereby, promoting the green concept.
- Water use has been reduced by 48.36% through no grey water reuse and the use of efficient plumbing fixtures such as low flow water closet, low flow urinals and faucets

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.