



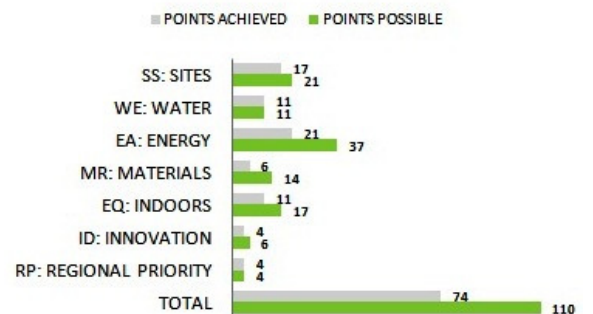
CASE STUDY: RBS India Development Centre



KEY PARAMETERS

| | |
|-------------------------|------------------------------|
| Occupancy Type | Office Space |
| Built up area | 53,862 Sq ft |
| Completed | December 2012 |
| Location | Gurgaon |
| Green consultant | En3 Sustainability Solutions |
| Rating System | LEED ID+C |
| Rating Achieved | GOLD |

LEED SCORES



The RBS Office space in Gurgaon has been awarded Gold certification under USGBC's LEED ID+C rating system. The project is a classic illustration of how even when the base building is not green, the commercial interior can incorporate various green measures within their space and achieve maximum energy and water savings and achieve the desired LEED ID+C Gold Rating from U.S. Green Building Council.



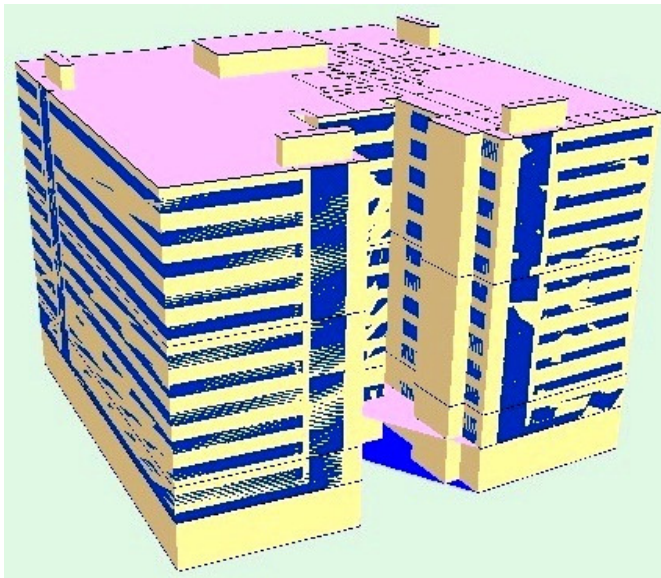
SITE SUSTAINABILITY FEATURES

- The project is located in an 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.

WATER EFFICIENCY

- Low flow dual-flush toilets, sensor based urinals and other low flow fixtures installed have resulted in potable water reduction of water use of **51.54%**.
- The base building landscaping and irrigation systems have been designed to reduce potable water consumption for irrigation by 100% and to reduce total water for irrigation by 58.08% from a calculated baseline case
- The base building treats 177.83% of wastewater on-site to tertiary standards which is then either infiltrated or used on-site.

ENERGISING THE BUILDING



- Provision of high performance glazing, energy efficient HVAC design and lighting has contributed to energy savings of about 49.9% 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 10.65% of reduction in connected lighting power density over the base case of ASHRAE standards.
- Daylight responsive controls have been installed in 100% of all regularly occupied spaces within 15 feet of windows or under skylights.
- ENERGY STAR-rated equipment and appliances equal to 54%, by rated power, have been installed on the project.
- 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, 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 85.83% of the on-site generated construction waste from landfill.
- 20.46% of the total building materials, by value, have been manufactured using recycled materials.
- 23.45% of the total building materials value includes building materials and products that have been manufactured within 500 miles of the project site and that 3.81% of the total building materials value includes building materials and products that have been extracted within 500 miles of the project site.
- Use of materials with recycled content and materials manufactured locally/regionally as much as possible to reduce virgin material exploitation
- 10.31% of the total building materials value includes building materials and products that are from rapidly renewable sources.



INDOOR ENVIRONMENTAL QUALITY



- Better air quality and additional fresh air by 30% have been provided for enhanced indoor environment
- The project conducted a flush-out prior to occupancy by supplying while maintaining an internal temperature of at least 60 degrees F and relative humidity no higher than 60%
- A CO2 sensor has been installed within each densely occupied space and these sensors are programmed to generate an alarm when the conditions vary by 10% or more from the design value.
- The project developed and implemented a Construction IAQ Management Plan that followed the referenced SMACNA Guidelines.
- Low emitting adhesives, paints, carpets and composite wood products have been used to enhance the indoor environment and provide superior workplace for all employees.
- Permanent entryway systems have been installed within the base building immediately within the required entryways to capture dirt and particulates. All supply air systems serving regularly occupied spaces have been outfitted with a new filtration media with a rating of at least MERV 13 immediately prior to occupancy.
- A permanent monitoring system and process for corrective action are in place to ensure thermal comfort performance to the desired comfort criteria

NOVELTIES

This project is really an excellent example of true sustainable development from design stage until execution and shall definitely become a benchmark for future projects to emulate.

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.