



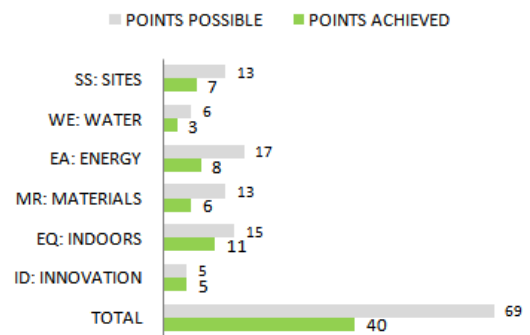
## CASE STUDY: GRUNDFOS PUMPS PVT LTD, CHENNAI



### KEY PARAMETERS

<b>Occupancy Type</b>	Manufacturing units
<b>Built up area</b>	35,000 Sq. ft
<b>Completed</b>	May 2005
<b>Location</b>	Sriperambudur, Chennai
<b>Owner</b>	GRUNDFOS
<b>Green consultant</b>	En3 Sustainability Solutions
<b>Rating System</b>	LEED India NC version 1.0
<b>Rating Achieved</b>	GOLD

### LEED SCORES



**Grundfos** is the world's largest pump manufacturer, based in Denmark with more than 18,000 employees globally. The annual production of more than 12 million pump units, Circulator pumps (UP), submersible pumps (SP), and centrifugal pumps (CR) is approximately 50% of the world market for these pumps. En3 has worked very closely with GRUNDFOS PUMPS PVT LTD. to achieve LEED gold certification by incorporating energy, water and materials efficiency measures in addition to providing a superior indoor air quality and overall environment for all its employees.



**SITE SUSTAINABILITY FEATURES**

- Stacking and protection of top soil onsite and reusing the same for landscaping.
- Retention basins for storm water channel.
- Bicycle stall with showers endorsing the use of alternate vehicles.
- Effective storm water runoff management is done through rain water harvesting.
- Provision of bus lines to all the employees.
- Use of Energy Star certified roofing products and shading by mature vegetation reducing urban heat island effects.



**WATER EFFICIENCY**

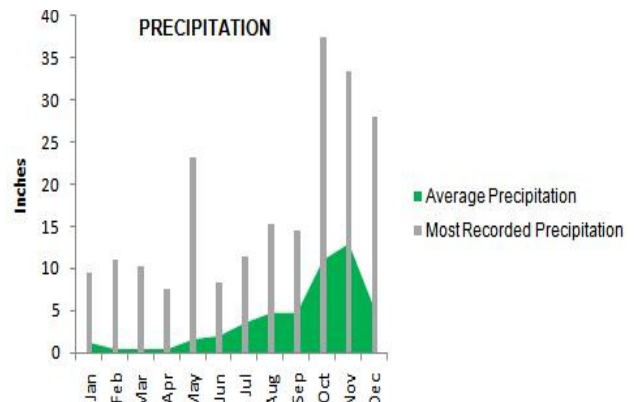
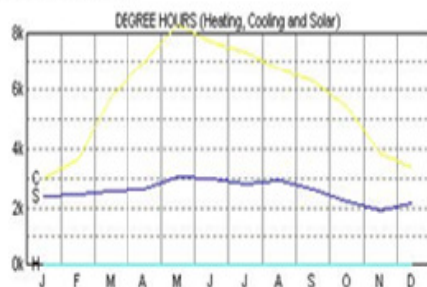
- Water efficiency is an integral part of the sustainability initiatives. Special efforts have been taken to minimize water use by installing water efficient fixtures, effective rainwater harvesting and sewage treatment plant to treat 100% of onsite waste water for reuse
- The entire rain water on-site is captured and stored in huge rain water harvesting ponds.
- 100% of the treated water on-site shall be reused for landscaping and toilet flushing thereby minimizing the use of potable water for all these applications
- Low flow dual-flush toilets, sensor based urinals and other low flow fixtures have been installed to reduce potable water consumption by over 36.28%.

**ENERGISING THE BUILDING**

- In line with international standards, the refrigerants used in the air conditioning system are environmentally friendly and have very low ozone depleting and global warming potential.
- Endowed with lighting power and fan savings. Energy simulation output substantiates a 28% energy cost saving.
- 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 high performance glazing, low U-value walls and roof, energy efficient HVAC systems and CFL, T5 and LED based low energy lighting systems.



NAME: Chennai-Madras  
 LOCATION: IND  
 DESIGN SKY: not available  
 ALTITUDE: 16.0m  
 LATITUDE: 13.0"  
 LONGITUDE: 80.2"  
 TIME ZONE: +5.5hrs





## *RESOURCE MANAGEMENT*

- The project has ensured that up to 98.77% of total construction waste debris has been recycled or reused thereby diverting them from landfills.
- The project has achieved a combined recyclable content value of 17.19% and reuse content of 13.82% of total material by cost thereby reducing virgin material exploitation.
- A number of materials have been extracted and manufactured locally/regionally thereby reducing the pollution associated with transportation.

## *INDOOR ENVIRONMENTAL QUALITY*



- 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
- The entire building interior is a non-smoking space thereby ensuring the health and safety of all its occupants
- Adhesives, sealants, paints and coatings used in the building are low VOC (volatile organic compounds) thereby having minimum organic emissions that are harmful to humans
- The composite wood products used have been purchased to ensure that they do not contain urea formaldehyde that can be potentially harmful for occupant health
- Majority of the occupants of the building will have control over their lighting and air conditioning set points thereby giving them the flexibility to control their own environment
- The entire building has been planned to harvest 79.76% of natural day light and 97.1% of space has direct access view of outdoors providing connection to the exteriors

## *NOVELTIES*

The project achievement exceeds the threshold of 98.77% for exemplary performance in Construction Waste Management. 79.65% of the total project's materials, based on cost, were manufactured regionally. The project Achievement is higher than the next incremental percentage threshold of 40%. Implementation of Green house keeping program promotes green techniques. The building has been designed by En3 to showcase various green and sustainability measures and practices and the effort is to use this building 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](mailto:info@en3online.com) and for more information visit us at [www.en3online.com](http://www.en3online.com).