



Windmills Of Your Mind

Location	: Whitefield, Bangalore, Karnataka
Site Area	: 97,460.90 m ²
Built up Area	: 4,53,336.00 m ²
Air-conditioned Area	: 0 m ²
Non Air- conditioned Area	: 26,336.00 m ²
Typology	: Residential
Energy Performance Index (EPI)	: 29.42 kWh/m
Renewable Energy	: Renewable energy system was not installed
GRIHA provisional rating	: 4 Stars
Year of completion	: 2015

The following strategies were adopted to reduce the building impact on the natural environment:

🌱 Sustainable Site Planning:

- Measures were adopted for soil erosion control, preservation of fertile top soil, protection and preservation of existing mature trees on site.
- The services have been planned to cause minimum site disturbance.

🌱 Water management:

- Reduction of 42.42% from the GRIHA base case has been demonstrated in landscape water demand through drip irrigation and native and naturalized plant species.
- Reduction of 51.64% from the GRIHA base case has been demonstrated in building water demand through provision of low-flow plumbing fixtures and use of STP treated water for flushing through dual plumbing system.
- 100% storm water run-off from roof is being recharged into the ground through recharge pits.

🌱 Energy Optimization:

- The Energy Performance Index of the project has been reduced by 69.66% below the GRIHA base case through envelope optimization, and integrating high performance systems.

• Visual comfort:

- » Landscaped spaces are provided amidst the buildings to provide visual connectivity and ample daylight in the interior spaces. Adequate day lighting has been ensured inside more than 85% habitable spaces.

• Thermal comfort:

- » Terraces, balconies, horizontal shading devices along with appropriate glazing have been provided to reduce 45% of direct solar heat gain.
- » Fly ash bricks have been used for building envelope construction.

🌱 Renewable energy:

- Solar hot water system to suffice 100% hot water requirement has been installed, thus reducing the consumption of energy generated from non-renewable sources.

🌱 Sustainable building materials:

- 16.29% and 33% of cement is replaced with fly ash by weight in structural and plaster/masonry work respectively.
- Fly ash bricks have been used for wall construction.
- Steel having recycled content has been used.
- Materials such as wooden flush doors, Aluminum window frames and vitrified tiles having recycled content, low-VOC paints, adhesives and sealants have been used in interiors.

Integrated Design Team:

Client	: Pharande Promoters and Builders
Principal Architect	: Shibanee and Kamal Architects
Landscape Architect	: Ar. Kshitija Kolhatkar
Project Management Consultant	: Gensys Technology Private Limited
Structural Consultant	: Gensys Technology Private Limited
Electrical Consultant	: Zopate Electrical Consultants Pvt. Ltd.
Green Building Design and Certification	: VK:e environmental LLP

Building performance as per audit report

Energy

- Final EPI achieved - 17.73 kWh/sqm/year.
- Reduction in EPI from proposed case – 82.27%.
- Thermal comfort is met as per NBC 2005.
- Lighting lux levels are met as recommended by NBC 2005.

Water and waste:

- Water test report indicates conformity to IS codes.
- Reduction of 56.74% in building water consumption from the GRIHA base case.

Noise level

- Outdoor noise levels are within acceptable limits as per CPCB.
- Indoor noise levels are within acceptable limits as per NBC 2005.