Courtesy: Vishwanath Associates

DELHI METRO PLANS A GREEN STATION

The Delhi Metro Rail Corporation (DMRC) is planning a green Metro station at Sushant Lok in Gurgaon. The last station on the 7.05-km-long Gurgaon line (from Haryana border to Sushant Lok) will have a seven-floor eco-friendly building complete with a shopping and entertainment complex like in malls. The station is expected to be ready by January 2010. Bangalore-based architects Vishwannath Associates are designing the project.

The DMRC is working out the architectural and engineering details for the proposed complex in association with The Energy Research Institute (TERI) and the architect. The line will have a total of five stations—Sushant Lok, Garden Estate, Sikandarpur, DT City Centre and IFFCO Chowk.

Vishwannath Associates took a sensitive approach to the project in terms of its environmental impact on the surroundings. The proposal of making the building green received an overwhelming response from the Managing Director of DMRC, Dr E Sreedharan, which made way for the architects to seek the expertise of TERI in this regard.

Principal architect V Vishwanath says, "DMRC has accepted our proposal for the green building for the station complex. There are two major factors that set the Sushant Lok Station in Gurgaon apart from its other counterparts till date; 1. it is the last Metro station in the southern corridor where property development causes an ever increasing demand especially in an area like Gurgaon, and 2. it is the first-ever green or sustainable metro station in the country, which is of utmost importance, considering the depleting water table in the region and the extreme climatic conditions."

Bangalore-based Vishwannath Associates are designing Delhi Metro's Sushant Lok Station in Gurgaon as a green structure. Renu Ragavan reports on the project that will be rated under TERI GRIHA

Gaurav Shorey, Area Convenor, Green Rating for Integrated Habitat Assessment (GRIHA), and Research Associate, TERI, who was also an Advisor for the project, said that the project had got approval from the government. "If it is rated then it has to be under the GRIHA system as endorsed by the Ministry of New and Renewable Energy, Government of India," he said. "TERI will be assisting in providing service and information on relevant technologies," he added.

DMRC's Chief Public Relations Officer Anuj Dayal said that the Sushant Lok Station, which would be on an elevated line, would have three-and-a-half floors above the ground and another three floors below it, including the basement. One of the plans is to make the station building eco-friendly by using clay tiles that will provide weather insulation to the building.

"The structure above the ground is about 33,000 sq m and the basement is about 70,000 sq m. The basement will mainly cater for parking space and the space above will be for the station with the shopping and entertainment complex," explains Viswanath.

"These extra floors will be part of a big shopping complex at this location. Ninety-five per cent of the foundation work has been completed and the building has to be ready by January 2010, around the time when this line is supposed to be opened," Dayal said. "We also plan to adopt proper water and waste management

of windows, walls and roofs)."

The building shall also try to minimise its water demand with the waste water treatment plants, and solid waste management strategies shall be adopted for disposal and handling. The landscape would employ native tree species for negligible water demand for horticulture, and rainwater harvesting shall also help cater to the water demand of the building, other than recharging the ground water aquifer.

Minimum consumption of power for air-conditioning systems can be achieved with the help of water-based cooling systems, opines Vishwanath. "For this, we are consulting TERI for technical assistance," said the architect. On the whole, the building shall be made energy- and resource-efficient through compliance with key criteria. ▲

strategies," he added. The design would be made to conform to the levels of the Bureau of Indian Standards.

According to the architect, other features would include utilisation of climactic factors such as wind load, solar energy and air movement pattern, optimum combination of water, material and energy, recycling of waste water, rainwater harvesting, minimal use of water during construction, optimal use of natural light inside the building and restriction on indoor noise level.

"The building shall strive towards resource use optimisation, through reduced resource (water, energy, materials) consumption, which shall help reduce the demand for electricity, water and so on in the building. And rely on renewable energy systems (solar thermal systems for hot-water requirements and limited PV systems) and waste and waste water recycling to cater to its water and energy demand," says Shorey.

Shorey explains the green focus: "the architecture of the building shall be assessed for Energy Conservation Building Code (ECBC) and National Building Code (NBC) compliance, as well as the electromechanical systems that go into the building. So if required, the architectural design shall be adjusted for optimum window-wall ratios, shading device designs for improved effective Solar Heat Gain Coefficient (SHGC), adequate natural and artificial lighting conditions with minimum glare, minimum achievable lighting power density (LPD) and so on. The building envelope shall also conform to ECBC thermal performance criteria (U Values