

# Housing Project: **Luminosity**

Project Holder : Nadja

Architects : David Nightingale and Ganesh Bala

Structural Engineer : Thamizharasan, Pondicherry.

Contractor : Bhaskar

Landscape Design : Nadja and Martin

Waste water Treatment Consultant : Jean Francois, Auroville.

Dehumidification Consultant : Alok, CSR, Auroville.

Rain water Harvesting Consultant : Alok, CSR, Auroville.

Lighting Consultant : Venky, Arclite Architectural Pvt.Ltd.

Construction Started: May 2008

Status : Under Completion

Target date of completion – October 2010

Site : Sector 2, Residential Zone

Funding – Private



*Site-plan*

Ground floor Plinth Area – 618 sqm – 9 offices with common toilets and kitchen

First Floor – 562 sqm – 6 apartments

Second Floor – 562 sqm – 6 apartments

Terrace – 618 sqm - Partially covered – communal facilities and gardens

Materials used – RCC framed structure with cavity walls using fly ash bricks and fired bricks.  
Landscape Design – primarily indigenous planting  
Waste water Treatment – baffle reactor, artificial stream and polishing pond  
Dehumidification System –  
Rain water Harvesting – 300,000 litres of rainwater stored in 750,000 litres of sand  
Water System – rainwater as primary source with residential zone tank as back-up



SOUTH FACADE

In the **Luminosity** project, we are aiming to explore a new living/working environment within the context of the residential zone, utilizing a number of ideas which have come from the dreamcatcher forum. We are not only trying to explore different approaches to community life, but at the same time we are trying to radically reassess our water and electricity consumption in the face of global shortages.

Combining the principles of 'voluntary simplicity' with the essence of 'A temple for living and working in', we aim to create simple, rich and beautiful spaces for a daily life in which the growth of consciousness is the main focus - the emphasis clearly being on quality not quantity. To this end the individual rooms are not especially vast but are spacious, the materials are not particularly luxurious but are both hard-wearing and beautiful, and the detailing is not just the product of aesthetic criteria but of a well-thought-out functionality with a focus on 'low-maintenance' solutions. The ground floor is dedicated to offices and the residential area is raised off the ground to ensure a high degree of privacy and to avoid the need to build fences and private water-intensive gardens. The hope is that this will help to nurture an Auroville that 'belongs to no-one in particular' since everyone is then free to walk wherever they choose.



*North Facade at Night*

We have also worked on the aspect of feng shui with Nadja and Bernard (a frequent visitor to Auroville and a feng shui professional from Switzerland) and Jean-Francois (Pitchandikulam) who has been working for many years on the ley-lines of Auroville, to improve and enhance the energetic foundation of the project.

The climatic, environmental and acoustic aspects of the project have been at the forefront of the decision-making process and have strongly influenced the design. In the spirit of experimentation, the project includes a rain-water harvesting system, a grey-water recycling system, a bicycle 'generator' and a centralised de-humidification system.

From the point of view of water conservation, each apartment has a metered hook-up to our rain-water harvesting system that will catch 500,000 litres of monsoon rainwater, providing each resident with 100 litres of fresh water per day, all year round. This system has already been successfully built in Rajasthan, and involves digging two large pits alongside the building, lining them with an impervious rubberised plastic sheet and then filling them with 1000 cubic metres of sand to create a surface-level aquifer.

All the grey-water will be treated in a system that passes the water through a 'baffle reactor' after which it is cleaned in a natural reed-bed system and then stored in a landscaped pond before being pumped up to a tank on the roof of the building for flushing toilets and watering the plants. This not only re-uses the waste water but it is hoped that it will also reduce the demand on the rainwater.

Combining both these systems with 'low-water-consumption' appliances and indigenous landscaping (which requires minimal watering), we hope that we can meet all our needs for water from rainfall alone.

Concerning the electricity consumption of the project, although the solar panels which are available in India are too expensive for us to invest in at present, the factories for a new generation of affordable 'thin-film' solar panels are already being built, and as and when this technology becomes available we have the cables and infrastructure in place on the roof to simply 'plug' them in.

In the meantime we are also installing a 'bicycle generator' on the roof terrace which will charge batteries to supply the electricity for the apartment as one admires the sunrise over Auroville.

Although the building has been aligned to take advantage of the natural breeze in the summer months, we are installing a new de-humidification system which is being developed in Auroville. It utilises various parts from air-conditioning machines to cool and dehumidify the air, but then a heat-exchanger is added to return the air to its original temperature. This has a number of advantages in that it not only uses a fraction of the power of an air-conditioner, but also the building itself does not need any extra insulation in order to keep the 'heat' out. On top of this, it can also help dramatically during the monsoon period when one would like to stay dry but when it is also often too cold for an air-conditioner.

To round off this description of our various attempts to reduce our electricity consumption, whilst promoting a simple, comfortable lifestyle attuned to this climate, the whole building

will also be fitted with energy-saving LED bulbs which not only use a fraction of the power of normal 'energy-saving' bulbs, but which also have a much longer life.



*from North with rainwater harvesting tank*



*from South*

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Concerning the acoustics, all the apartments are separated from each other and from the staircases by cavity walls built of dense fly-ash blocks, which lower sound transmission and provide ducts for the various pipes and cables. A similar approach has been taken in the floors, where the inverted beams above the slabs are also filled with rice-husk ash to help deaden sound-transmission vertically between apartments. The staircases themselves are built as free-standing elements unconnected to the main walls, and the north side of the apartments (facing away from the green corridor) are equipped with vertical louvers which can be closed either in case of monsoon rain (which usually approaches from the north-east) or in case of noisy activities either inside or outside the space.

Climatically, the building has been oriented to make the most of the natural breeze in the summer months, where full-height sliding doors of mesh and/or glass can be opened to maximize the wind. In the morning and the evening hours the cavity walls to the east and west also minimize heat transfer from the sun, and the main roof will have gardens with similar insulating properties.

Finally, the roofscape is also to be seen as an extension of the community - with the provision of laundry/drying areas and meeting spaces under the photovoltaic panels, and a roof garden at each end of the building with creepers growing down to cover the end walls.



*Works in progress ...*