A MODERN MUD HOUSE

The Auroville home of Regina and Robi, is a charming mud house, built using the age-old 'wattle and daub' technology.

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The rotating blades of a windmill, towering over the numerous trees of a man-made forest, marks the entrance to the house of Regina. Thereafter, a narrow path leads one to a cluster of sloping roofs that blend into their natural surroundings.

Regina’s house stands on stilts in a shallow pond. A bridge takes one over into the outdoor space that is the heart of the home, the nucleus, held on each side by the three structures that surround it. I find myself a seat under the shade of a tree, and while Regina is looking for photographs of her house in the making, I have a moment to myself to notice the features of this building language and recognise the elements that contribute to the overall feeling of warmth and lightness. Natural materials are thoughtfully and delicately used, revealing their...
A chimney that goes through the living room to the dark room and continues through the bedrooms upstairs, ensures that the humidity that tends to accumulate in a house is driven out.
Above & Above Right: Looking out from the living room into the main outdoor space; the kitchen is a separate structure.

Centre: Looking from the bedroom into the living room, and to the outside.

Below: A spiral staircase connects the living room to the upstairs.
inherent beauty. The main house, the kitchen and the bathroom that are separate structures, are all connected through this outdoor space, enabling the activities of the kitchen and living to spill over as needed. The landscape that is rich in texture, continues into the pond. Rough and smooth granite, pebbles, water, earth, wood, water lilies, reeds, trees, orchids, and fish, are all bathed in the morning light.

The three mud structures are so light in their presence that one would hesitate to call them "buildings", the word suggesting massive and solid images. The structures are "pucca" but light, and Japanese in their character. "The nice thing about the house is that it feels so light, and it can breathe, and it doesn't "capture" you like conventional walls that have a rigid and dense sensation" says Regina. "When I was studying architecture, I had specialised in tropical architecture, and when I came across Japanese architecture, I got hooked on to this kind of spirit... and it's not like we are in a desert where thick walls are needed for climatic comfort."

The ground floor has a living room with a chimney, a dark room and their bedroom, and upstairs is another living room with a terrace, and their daughter's room.

The principle of the wattle and daub technique is an age-old one. It consists of a load-bearing structure, which is usually wooden, between which is woven a lattice netting from vegetable matter and then plastered on either side with earth, which is mixed with straw or other
Above: The kitchen interior with furniture designed by Regina herself.

Above Right & Centre: A balcony is attached to one face of their daughter's room, which looks out onto the garden.

Below: The upstairs living space, with a wooden floor. Their daughter's room is on the right.
vegetable fibre to prevent shrinkage upon drying. Wattle and daub construction is one of the main techniques to build in mud.

Nowadays, the adobe, rammed earth, and compressed block techniques are most widespread and have reached extremely high scientific and technological levels. It is perhaps regrettable that these three techniques now dominate the field to the detriment of the others, which are still of certain interest.

Regina had seen the wattle and daub mud house of Meike, a German resident of Auroville, and immediately found it a fitting technology, best satisfying her own criteria for a home. Regina had also seen the home of Roy and Daniel who had lived in Auroville some years ago, which was the first one of its kind in Auroville. But though she had seen these houses, there were no readymade formulae for the ideal mud mixture. Regina had to experiment a lot to find the ideal proportion of earth to sand and straw. Meanwhile she also came across an army handbook of building, containing many useful recipes for mixes. Although building with mud involves a lot of feeling and experiencing, if the army is recommending
something, it definitely gives the additional confidence,' asserts Regina in appreciation. 'But it's like baking a cake! You have to feel the mixture!'

Inspite of the mud being very good for building in this area, on the recommendation of a professional German oven-maker who had been to Japan, a bit of sand was added to reduce cracking. Into this earth-sand mixture, fibres such as chopped rice straw, shredded into 2 cm, were mixed. Then the earth had to mature a bit before application. In the first case, the kitchen, rice straw and common grass were used.

But Regina knew that such options were not something everybody could procure, and she wanted to experiment further in her main house, to test coconut fibre as an alternative. 'To avoid the powdery matter that comes with coconut fibre, it is better to use the best quality, and you don't need so much,' recommends Regina, now that this solution has worked wonderfully. There is no chopping and shredding involved, but initially it takes long to mix.
The roof slope would decide the life of the house — if the slope was 30 degrees, the life expected was 30 years, for 45 degrees slope the life expected was 45 years, and so on.

The fibres that stick out after flaming, can be simply flame off. I wondered if she had arrived at an ideal mixture that she could recommend for this soil. Regina recalls her mixture as a three-quarter bathtub full of mud, two chatties of sand and half a bag of coconut fibre or a three-quarter bag of grass. Unprecise as this mix may sound to technicians, I remind myself and the reader of Regina’s main tip: ‘But it’s like baking a cake! You have to feel the mixture!’

Natural as they look, full of improvisations and spontaneity, many imagine that there had been no real architectural plans, or, at least no detailed drawings. But on the contrary, Regina had foreseen and thought of everything much in advance. All details were worked out beforehand. ‘We prepared everything carefully. We had plans to the millimeter, we had foreseen and drawn everything.’ No wonder the preparation took as long as the
execution, six months each. Carpenters started work long before. Doors and windows were all ready before beginning the foundation. The foundation itself was started only after all the stones for the floor had arrived. Being irregular in size, all the beams were adjusted accordingly. Every side elevation of the main wooden frame of the house was created and assembled on the ground and had to be numbered and dismantled. A crane simply had to put parts in place with the assistance of two labourers, “So in three weeks, the whole house frame was standing up.” Then came the basket-weavers who put in the split bamboo in a weave, leaving the structure now ready for mud plastering by masons. The plaster was applied in three layers, allowing an interval of 4-7 days for drying. Cracks form in the first layer, the surface of which is then wet again. The next layer will have less cracks and the final layer none. ‘Build both sides simultaneously to avoid warping of each panel,’ warns Regina.

The structure is very easy to maintain. It only needs to be protected from water from the top, by an overhang or coping, and can easily withstand the two monsoons of Tamil Nadu. From the bottom it needs to be protected from termites and standing water. The kitchen, now 11 years old, still looks as good as new. The roof of the kitchen and bathroom are unique too for this region. A chimney that goes through the living room to the dark room and continues through the bedrooms upstairs, ensures that the humidity that tends to accumulate in a house is driven out. Yet, even without the help of a chimney, the mud walls do not get mouldy, unlike other materials.

The sloping roofs are finished with wooden shingles, as in other tropical countries. Small pieces of wooden planks are used in three layers above each other. Regina has tried this out with acacia auriculiformis, a very widely grown species in Auroville, but thinks that eucalyptus would also be ideal. The wood was soaked for a few hours in hot cashew oil, and is varnished every year before the winter monsoon. Although a lot of wood is required, even the very small pieces can be used. Also, wood is still a renewable resource and this option is only feasible in areas where such trees are grown widely in the vicinity. A visiting friend from Germany who is experienced in this technique said that the roof slope would decide the life of the house — if the slope was 30 degrees, the life expected was 30 years, for 45 degrees slope the life expected was 45 years, and so on.

A windmill pumps water out of
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the ground and supplies the needs of the whole community. Shower waste-water is led into the pond that surrounds the house through water plants that clean the used water sufficiently, and the water then sustains plants and fish life. The energy demands of the house are met by photovoltaic panels that collect the sun's energy that is then transformed through an inverter into the regular 220 volts to run normal electrical appliances. Even a washing machine is being run by the solar power.

Regina had studied architecture in Kassel, Germany, but did not submit her final work. She had already been to Auroville where she then settled down almost 15 years ago. I wondered why she didn't complete the final submission for her architecture degree, especially as she had completed all the work. 'I didn't want to stay another year and a half in Germany. I wasn't interested in architecture in that sense any more. I would rather plant trees' she laughs. 'I think that's much more important.' It's a pity that she has not been involved in the making of more houses for other people too, I remarked. To which Regina had a very clear stand. She does not like to build conventional houses, 'I can't stand cement, it should be really limited to the minimum. Regina has also written a colourful book of how to approach climatically appropriate buildings. Robi, is engaged in the Auroville metal workshop and since many years has specialised in windmill technology for water pumping. Aureka presently is quite well known for their latest model of windmill AV 55 and stabilised soil block making machines.