

## Mud on your walls

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Written by **Garima Pant** (<https://www.financialexpress.com/archive/columnist/garima-pant/>) | Updated: Jul 21 2008, 04:05am hrs

For a while now we have been celebrating the marvel that is steel and glass. A sheer glass exterior that goes hand in hand with a geometric structure seems a staple. So much so, that architects have probably exhausted the various permutations and combinations that are possible to showcase their originality. But there always has been, and will be, good old mud. Its the building material that has run the longest race, and still is way ahead of its competitors. With no sign of the finishing line approaching either.

Renowned earth architect Laurie Baker has called mud the building material for the 21st century. It is estimated by the United Nations that about 40% of the world population lives in earthen dwellings. Those working with mud as the medium of construction prefer to call the practice earth architecture, not mud architecture. As Satprem Mani, architect and director, Auroville Earth Institute explains: the name mud has most of the time a pejorative meaning in the minds of people.


### Why mud

In contrast to other construction materials, including cement and steel, mud does not demand imported commercial energies and is therefore a favoured material for those desirous of sustainable living. Mud in most cases is a preferred construction material because of its low embodied energy, its availability as a local material, and its versatility in use, says Chitra Vishwanath, a Bangalore based architect.

Referring to its track record of thousands of years, G Shankar, founder and chief architect, Habitat Technologies Group in Thiruvananthapuram says of earth architecture: The texture, the colour, and the feel of mud as a building material makes me as an architect feel thrilled and excited to build. It also helps me gauge the durability and versatility of the building material. And working out of a four-storied office built of mud bricks, Shankar is hopeful the perception that mud is a poor mans material will change.


The group has constructed over a thousand buildings in Kerala using earth architecture and has recently completed a 1,00,000 sq ft complex in Bangladesh, in collaboration with Ahmedabad-based architect Keerti Shah. The uniqueness of this project was that the bricks used in the construction were made on the site using locally available mud by a machine from Auroville, says Shankar. It was for the first time that a project of this magnitude using earth architecture has been carried out in Bangladesh.

### The technique




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To build a mud house, the soil should be tested first low sand content is preferable. The soil can also be stabilised by using materials such as bitumen and tar. The cob technique is one of the oldest methods of mud construction. It is particularly good for constructing curved or round walls. However, when it comes to building very tall structures, it might not be useful. Another common mud technique is that of adobe, or mud bricks.

The wattle and daub technique, is really suitable for earthquake-prone areas. Habitat Technologies Group has, in fact, been using this method to build thin walls in the quake-prone north-eastern states. Here, mud is spread over frames made of bamboo or reeds and this method is traditionally used by many tribal groups.

#### Two sides of a coin

Earth architecture is much more eco-friendly than buildings made from conventional fired bricks. The embodied energy in compressed stabilised earth blocks (CSEB) is about 15 times less than country-fired brick and carbon dioxide emission is also much less about 7.8 times less than country-fired brick, says Maini. It has the least environmental impact, is cost effective, and works well climatically. Given that it is a plastic material, it lends itself to moulding into extremely graceful and fluid forms, says Jay Kaktikar, architect and partner in Design Associates.

Disadvantages of modern earthen buildings, which are stabilised, are mostly linked with bad design and/or unskilled labour. One has to learn a skill in order to use earth as a building material and often people believe that they can improvise like that, says Maini. This is a labour intensive mode unless you opt for self-construction, which is rather unknown in India. But in the West, where people are not averse to physical labour, most owners who prefer to build their own homes choose mud.

To get the best out of this architecture, it is advisable to be aware of the engineering limitations and the properties of mud to get a slice of the mud pie. Having romantic fascinations with this building material wont help, says Shankar. Also, making mud-based bricks is not an easy job where one has to ensure the right quantities of mud, cement and sand.

#### Affordability factor

Contrary to popular perception, mud houses are affordable to all classes, and can be designed to suit different tastes and fancies. They are environment-friendly and can face the elements with as much hardness as supposedly stronger constructions made from concrete. It has never been more expensive than conventional material, many a times far lower in cost in fact, says Vishwanath. She further adds that it takes a lot of hard work to understand the material, to design well with it, to train masons and workers on it.

However, opinions differ when it is said that earth architecture is a solution to the housing problem faced by the masses. It clearly is not an answer to the problems of urban housing. Ideally it would work if one were to provide affordable rural housing in its degenerated boutique form, well separated from its tectonic origins. And, it would be popular in the building of farm houses for the urban leisure classes, says Kaktikar.

Architect Gautam Bhatia supports Kaktikars views and feels that though mud is an easy material to work with, it is not really an economically viable option. Earth architecture makes sense in those places that have traditionally used mud. But otherwise, the upkeep of these houses can prove to be really expensive in the long run, with rains washing it away and the

problem of termites infesting these houses if not properly treated. People have had successful experiments using mud, but they have remained experiments only, says Bhatia. Now that's being down to earth.

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