

potters are used in the kitchen and bathrooms. The deck was made out of local eucalyptus and sal wood rafters with bamboo railing. Flooring in mud is done in the living area. Linseed khal was used with mud, clay, cow dung, straw. When rubbed thoroughly it gives a shining mud finish, an excellent floor. Bamboo is used for ceiling treatment, railing and light fixtures.

The underground room and kitchen flooring is in the local “katni” stone Keeping the current day necessity of security, a state of art security system is installed. There is also an inverter power backup and a duct for a desert cooler that cools the entire house at very little cost. All services i.e. electrical, sanitary are by green certified companies –Thus ensuring –*A fusion of traditional techniques and materials with modern necessities.*

OUTCOMES

The house has been in use for a year and half and has seen all season of the Indo-gangetic plains of North India from very severe summers, to heavy rainfall, to extremely cold winters. Just one desert cooler, with a vent through the central duct was sufficient in summers. In June when the temperature outside was 45°C, inside it was 28°C – perfect for human comfort. In winters, the in built fire place was used to burn scrap wood collected from the grove and the temperature inside was 22°C, where outside was 13°C. Openable windows ensured perfect cross-ventilation, trapping the breeze in monsoons and creating Venturi effect, thereby adding to the human comfort.

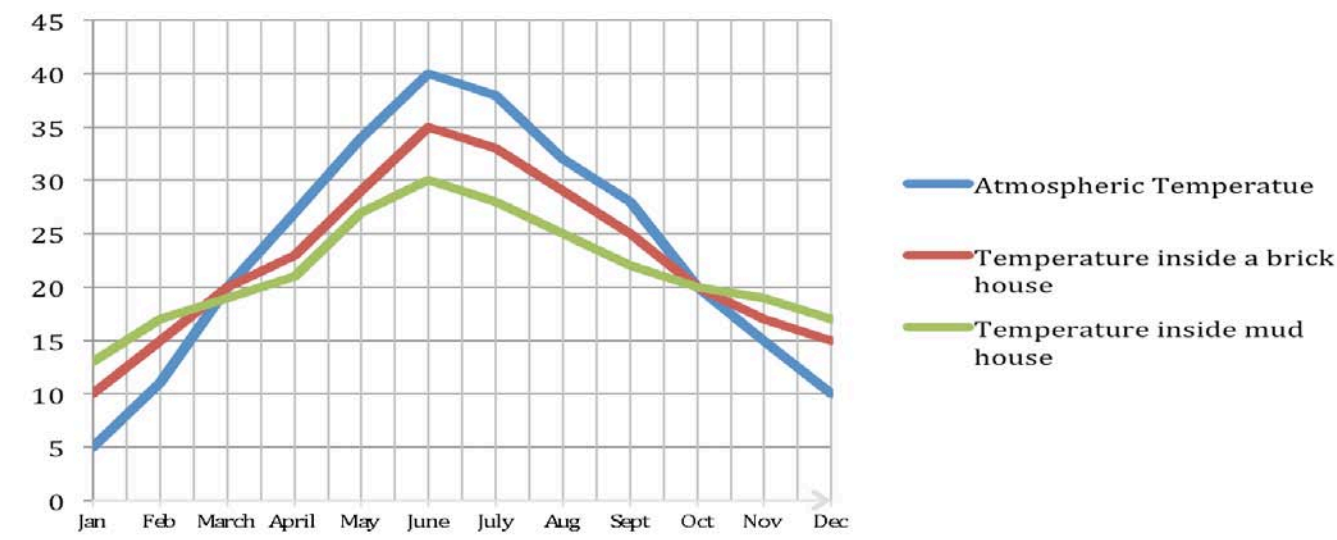


Figure 4 → Graph Showing temperature emulation

Adobe has excellent thermal insulation and acoustical properties. It also filters out harmful radiations and is low cost – ecologically and economically. A house planned according to the solar passive techniques, principle of Vaastu and built in adobe, thatch and filler slab is cost effective and ensures human comfort without consuming extra energy.

INFERENCES AND CONCLUSION

We cannot ecologically afford 6-8 air conditioners or the tonnes of steel and cement that go into building an average home when thousands have to be built. Operating on a 12 hour cycle of passive cooling and solar heating, adobe dramatically reduces the reliance on air-conditioning units. In a time of volatile fossil fuel prices, the economic benefits of adobe’s natural temperature controls are difficult to ignore.

Smaller towns like Karnal in India, are urbanizing at a great pace, and each individual aspires to own a house. It is estimated that the residential sector in construction is likely to see an unprecedented growth.

If architects and builders were to provide homes like *MaatiSirjanawe* could reduce the carbon footprint in this country significantly. Building in mud is seen as building for the poor, if awareness is generated – it could change the mindsets of

people in a developing country like India. By reducing a home’s environmental footprint a homeowner can lower operating costs. The owner will enjoy increased comfort due to fewer drafts, better humidity control and better indoor air quality, and will benefit from enhanced durability and less maintenance based on the longer-lived components and systems utilized.

T.E.R.I. Testimonial The Energy Research Institute, Delhi has introduced GRIHA, a rating system to judge the “greenness” of building. Swagriha: Is the system in which building with covered area less than 2500 sqm is evaluated.

MaatiSirjanaw was submitted for the *Swagriharating* and was approved by the evaluators. Thus it is ecofriendly, green and low cost.



Figure 5 → View from the South West

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