

Vietnams First Straw Bale House at Hanoi University of Civil Engineering (HUCE)

A ReBuMat Project



The situation:

- straw (rice) is available all over Vietnam in large quantities but is burned after harvest in most cases
- in rural areas standard accommodation is often of poor quality with health issues sometimes
- modern building materials are not easily available everywhere and are often expensive
- using straw bales as building material could be a solution to these topics
- straw bales could be produced on site and people could build their own houses with them
- straw bales as building material have been in use as such for more than 100 years
- it has become a certified material, fulfilling all official requirements in Europa and other regions
- for central Asia it is a fairly new building technique without sufficient studies or even certification
- straw bales can be used in all climate zones but might reach its limits in the tropics depending on local conditions
- to introduce straw bales as building material and to better understand the situation we started a **pilot project:**



At HUCE campus in Hanoi



Rebindung the bales



Putting the last bales in place



People are already in place



Before adding the timber structure on top



Great teamwork!



More work in progress



Public Presentation



Installing moisture sensors and calibrating device



With thatched roof and first layer of plaster



Finished



What else do we know?

- there are straw bale house in tropical regions of for example Australia, USA and parts of Asia
- professional straw bale builder are divided wether this technique is suitable for tropics in general
- rice straw does have a higher silica content which makes it stronger, with better mould resistance
- it will strongly depend on local conditions like wind and sun exposure and the actual level of humidity all year around
- details like plaster composition and foundation will also play a major role
- the potential is great but we have to define the limits and the best solutions
- very little research has been done in Asia so far
- here you will see a promising project from Sri Lanka:





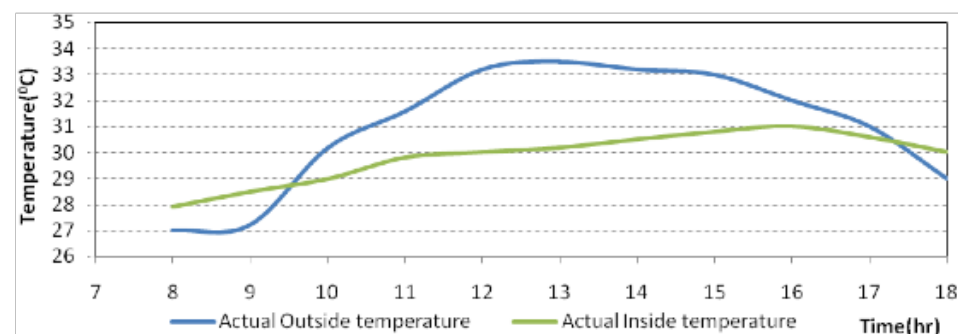
PERFORMANCE OF STRAW BALE HOUSES IN TROPICAL CLIMATIC CONDITION

J.P.S.Chamila, R. U. Halwatura

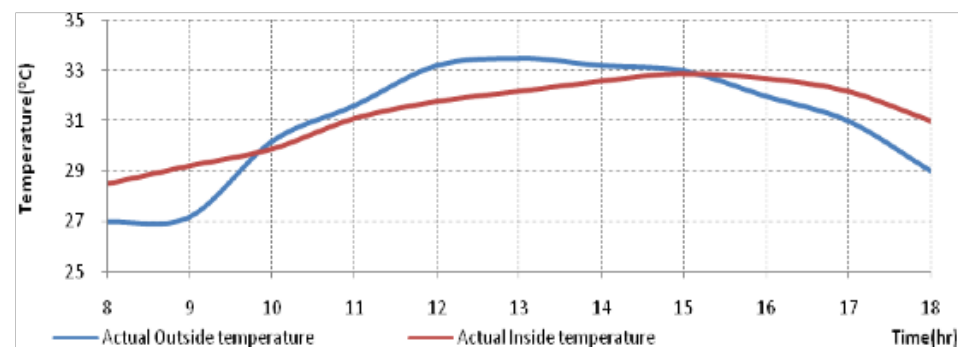
Department of Civil Engineering, University of Moratuwa

Straw Bale House Research Project in Sri Lanka

temperature in straw bale house



temperature in brick house



The background of the slide is a photograph of a rural landscape. In the foreground, there is a lush green rice field. In the middle ground, there are several trees and a small house with a red roof. In the background, there are more trees and a hillside. The sky is overcast and grey. The overall tone is somewhat muted and overcast.

Conclusio:

- long term research needs to be done concerning moisture behavior
- more buildings under different local conditions
- different plaster composition should be tested
- a baling machine should be available for further projects

Thank You!

