

TIMBER in HOUSING

Myth and Realities



TIMBER IN HOUSING - MYTH AND REALITIES

by

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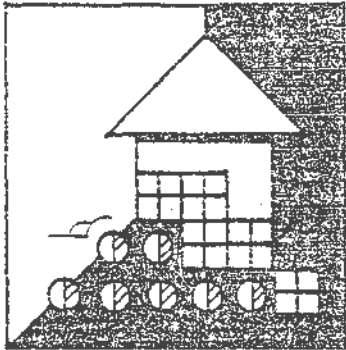
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1.0

1.0 Introduction

Nature has filled this land of ours with extremely rich tropical forests, very unlike what there is in temperate countries. The botanists tell us that there are over 5000 species of flowering plants out of which 2000 or so grow to tree size. Variety they say is the essence of tropical life.

Hence, with respect to timber, Malaysians are indeed a privileged lot for we have such varieties to choose from to construct our houses, to mould our furnitures and to decorate our homes. Yet it is rather paradoxical that Malaysians are generally very much unaware of what nature has endowed them with.

Our timbers are in high demand outside of our country. Furnitures made out of tropical hardwoods is a status symbol in those temperate countries where timber supply although available, is restricted to only a few choices.

In Japan where there is a traditional acceptance of timber houses tropical hardwoods are very much appreciated. It is therefore difficult to understand why Malaysians are very wary about our own timbers and especially timber being used in housing.

This reluctance is very evident in recent urban housing projects, where there is a decreasing use of

timber components in house design. Yet, this seems to be rather ironical as all traditional houses in Malaysia, be it in Peninsular Malaysia, Sabah and Sarawak have been built mainly out of timber.

How has this situation come about? Perhaps this could be due largely to some rather unwarranted bias created by some misplaced myths concerning timber in housing.

Whether or not they are founded or unfounded myths do exist. Admittedly, in some cases they do have some basis. However, a deeper insight into the issues involved will reveal that the basis is often only part of the truth or the exception to the norm. Let us therefore consider some of these and examine them later in this paper.

1.1 Scope and structure of study.

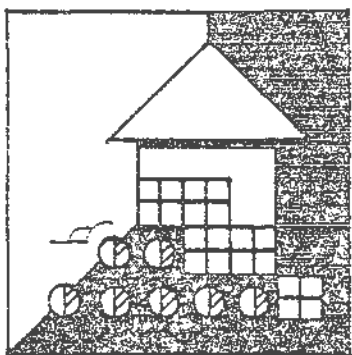
This dissertation aims to create a better understanding of and to renew confidence in the use of timber in housing. It is also hoped that it would dispel the myth surrounding timber and allay public prejudice against the use of timber in housing. It is also directed at the policy-makers, designers and academics to create an awareness and to pave the way for the greater use of timber in the housing industry.

For the purpose of this study, timber in housing is used in the main to refer to the use of timber as the main construction materials, such as structural components, cladding, finishes and framing in house construction. It also refers to the use of timber in limited ways like members in roof trusses, window and door framing and applied decorative finishes.

The study is structured into sections in which each section is devoted to a particular aspect to be discussed. An insight into the background of the timber house with a particular view to the Malay traditional house shall be discussed briefly. It will also broadly touch on the housing situation in Malaysia to put the study into perspective. This is to be followed by an analysis of the recent shift towards timber usage in the housing industry. Other issues related to the use of prefabricated timber house design would also be discussed.

It will also look at the current misconceptions and fears about timber usage at length and correct the misinformation so that a proper usage could be achieved, thereby preventing misconception, erroneous application and even lost of faith in our timbers.

The concluding section summarizes the findings and make some recommendations if any.



2.0

2.0 Background

The house is a central part of every society. The first dwellings in the South-East Asian region were probably adaptations of natural caves dwellings for protection against the weather and animals in a hostile environment. These cave establishments had their drawbacks; for example they give no protection against insects or humidity. So there was a move from the natural to the constructed shelter; the essential element of which was and remains to this day, the roof-giving protection from the sun and rain and raised floors-giving protection against flood and insects attacks.

These structures not only had a practical reason, they reassured the occupants. As Dumarçay, J. pointed out *"the space that the house delimits is the first step towards an ordering of the universe."* So gradually symbolism was incorporated into the structure which sought to put in concrete form the arrangements that humans always try to introduce in place where the house is established. So that the house would be well placed in space, an attempt was made to orient it according to the cardinal point.

The envelope-house has some sort of structure and is built from materials found in the neighbourhood. The

framework is mostly made of solid material and it must be resistant to the climate and attacks from insects. The framework is important to the manufacture when a new house must be build or the village must be moved, the old material is used in so far as possible for the framework.

The house expresses on the one hand the fantasy of its occupants inside, he is the master and escapes from the external constraints. In its dimensions and its situation in the town or village, the dwelling indicates the social standing of its occupants.

In our local context, the traditional Malay timber house which we shall focus on here; is a product of the Malay culture, tempered by strong religious beliefs, local conditions and climate. It is a result of interaction between the local architecture and those brought in by the migrant groups. The process changed the character of the migrant architecture while retaining some of the characteristics of the original, it has assimilated some of the local values. It resulted in a number of distinctive local styles (house types) but one with a strong common cultural base. Within Malaysia there are many types of houses such as the "minangkabau" house, the Perak house, Malacca house (Plates Nos. 1, 2, and 3). While these houses have their distinct character traceable to their origins, they share many common features.



Plate 1 - Minangkabau House with
its marked curves at
the ends of its roofs.

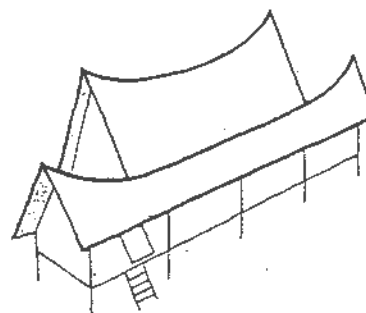


Plate 2 - Perak House commonly found in the Northern
West Coast States of Malaysia.

Form

Without exception, all the houses are on stilts and have steep pitched roofs. The house usually consists of two parts the main house (rumah ibu) at the front and the kitchen (rumah dapur) at the rear. The two parts are joined by a link and within each space there are no dividing walls. The open plan is not only appropriate but also suitable to the needs of group prayers and separation of men and women.

The house always has a distinct compound where the front portion in front of the house is a social and cultural space. It is the gathering place during weddings, funerals, games and other past times. The space therefore is open and well maintained, decorated with flowering plants and fruit trees.

Structure

The house use materials that are locally available; usually timber for the structures, floors and walls. Poorer families may use round timber structures, with walls made of thatched materials such as sago leaves or bamboo.

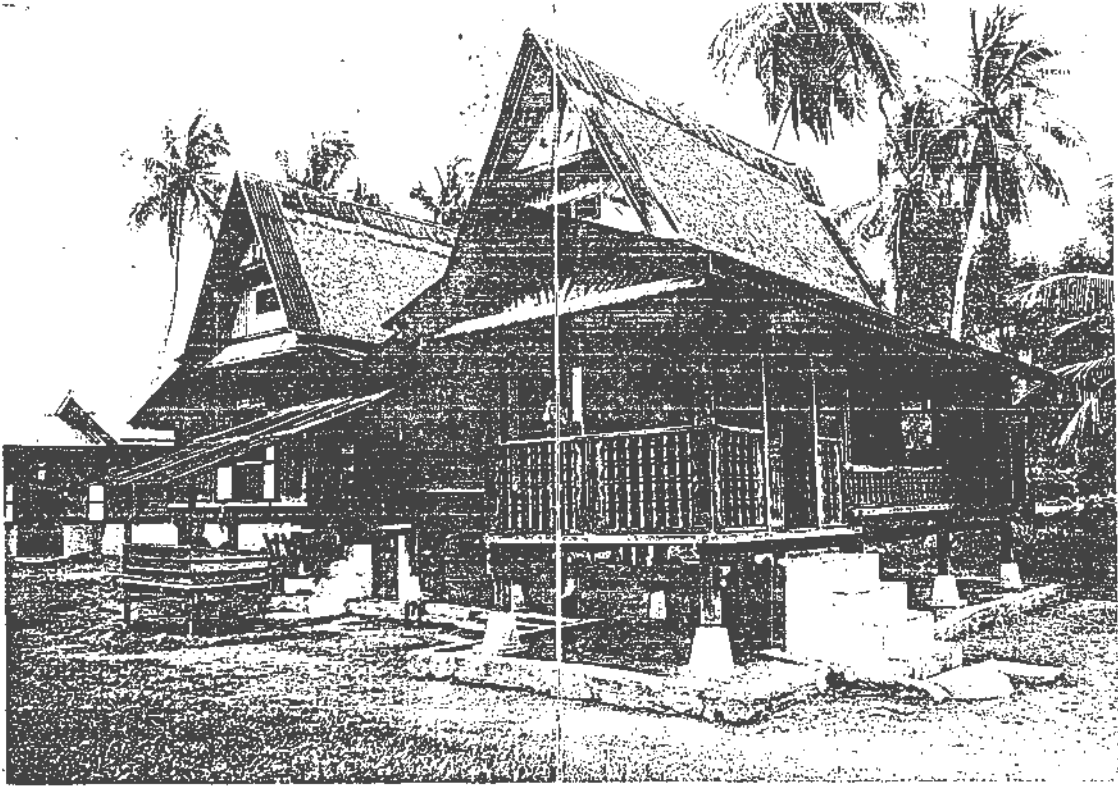


Plate 3 - Malacca House with
"rumah ibu" and
"rumah dapur".

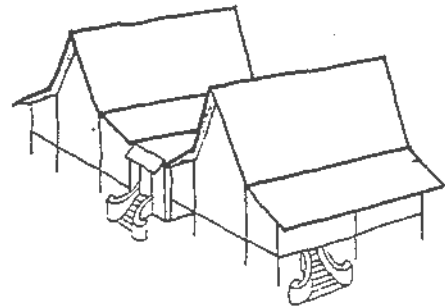


Plate 4 - House showing playground and social space
infront of the house.

Process

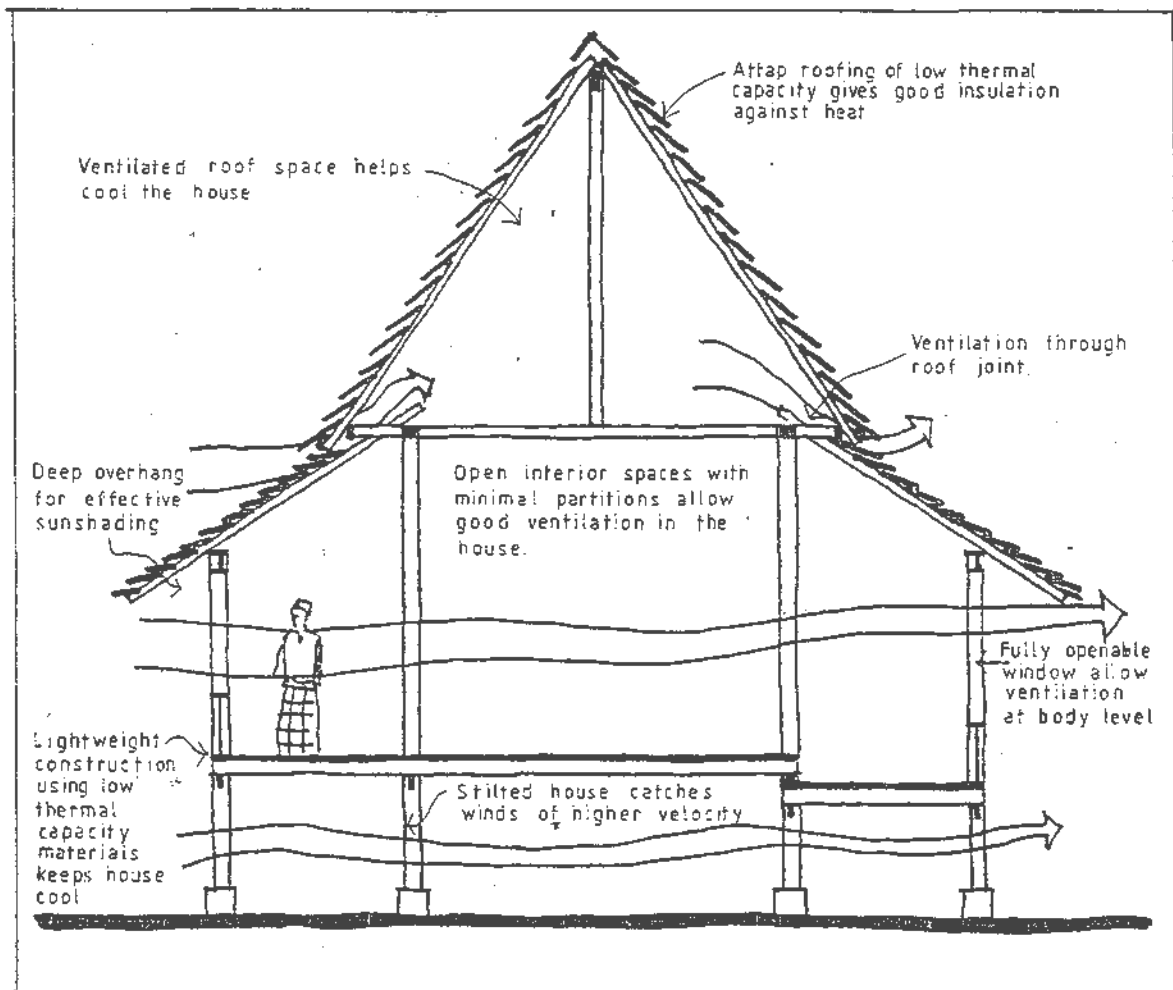
House building is as much a concern of the family as society. While the poor may build on land that is not theirs, they are with the owners permission. Usually these land belong to close relatives. In essence there are no illegal squatters, which is a modern urban phenomena.

Putting up the basic frame and elements is done with the help of the villagers. Finishing up the construction is by the appointed craftsmen or the house owner himself. The building process uses a system of prefabricated construction, where the materials are pre-prepared into building components, ready for site assembly. On the appointed date, the villagers would help to assemble the components, making it possible to complete the framings, roofs and floors of an average size house in a day.

Climatically appropriate

The house has both environmental and climatic fit. The use of steep thatched roofs and wide over hangs, provided excellent insulation against the tropical sun while effectively shielding the walls from heavy rains (Plate 5). The technique of timber construction used, allows for ventilation gaps at the body height; a critical consideration for comfort conditions in

the tropics. The full height windows is an excellent example of the understanding shown of the need for ventilation. The open plan is not only socially desirable, but also allows good air movement.



Climatic Design of Traditional Malay Timber House

2.1 Housing situation in Malaysia.

The fulfilment of housing needs is a major social objective of national development. The aim is to ensure that all Malaysians in particular the lower income groups, have access to adequate housing. The Third Malaysia Plan (TMP) emphasizes the provision of housing as an important component of the programmes to eradicate poverty. (Government of Malaysia, TMP 1976 pg 330).

Until recently discussions on housing problems in Malaysia have been dominated by the traditional way of looking at housing: how many units of at least a certain minimum standard should be built in order to solve the problem and how should they be supplied?

In order to understand the nature of the housing situation in Malaysia, a brief discussion of the housing characteristics and urban residential house types follows. It is the objective here not to provide an exhaustive analysis of the housing situation but to review the situation briefly and to point out the role of timber in the housing construction.

2.2 Housing Characteristics.

According to the 1980 Housing and Population Census there were 2.63 million private "living quarters"¹ of which 2.21 million were in Peninsular Malaysia. It also noted that 66% of the households in Malaysia live in rural areas. This was a decrease of 7% from 73% in 1970, clearly showing the rapid urbanization trends in Malaysia.

The 1980 Population census also reveals that houses and bungalows were the most common living quarters in Malaysia, housing 92% of the total households with the remaining 8% staying in apartments and rooms. Within the houses and bungalow category, the kampong houses which are of traditional timber construction constituted the majority units.

The earlier census in 1970 found that almost 2/3 of the living quarters in Peninsular Malaysia used timber in the construction of walls, while another 7.8% had walls made of bricks and planks. Bricks and concrete walls were found in 9.9% and 6.8% respectively. These figures show the importance of the use of timber as a building material for Malaysian houses but the trend is moving towards the increasing use of brick and concrete as building materials.

2.2 Urban residential house types in Malaysia

Residential housing in Malaysia of today may be described as a dichotomous phenomenon. On the one hand, the traditional local designs timber housing occupy most of the countryside where the economic activity of the general population depends on agriculture and fishing. On the other hand, the modern houses of basically western design and concrete construction which have been introduced within the past fifty years which has gradually replace the timber houses in the urban centres.

Urban residential housing in Malaysia may be divided into 5 categories:-

i. Village housing:- Snugly tucked away in small pockets within and on the fringes of the urban sprawl are patches of green giants tropical trees with a network of intertwining footpaths. These are remnants of the village residency resisting the invasion of modernization. All of the houses are of timber construction, some dilapidated but some quite neatly maintained.

ii. Squatter settlements:- These are very temporary dwellings put up hap hazardly by using any material available. The squatter settlement are largely built of timber with cement flooring and galvanised iron

sheets for roof. The dwellers have no legal right to the land and therefore are quite reluctant to invest substantially in the buildings.

iii. Low-cost housing projects:- A limited number of large apartment houses are put up by the government. These consists of a large number of flats or apartments, each unit being very limited in space. Officially only certain categories of citizen are eligible to rent or buy these units.

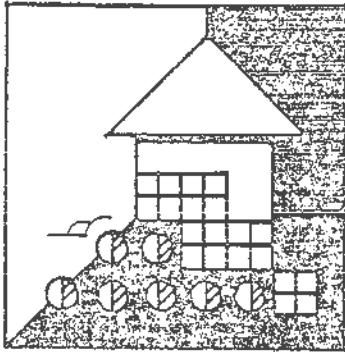
iv. Housing development projects:- These include terrace housing , semi-detached housing and independent bungalows. All such units are of reinforced concrete frame and brick filled-in walls. The floors are of concrete slab or of hollow blocks with concrete finish. The size of such housing projects ranges from small ones of twenty units to large ones encompassing several hundred units.

v. Old colonial style mansions:- These have spacious grounds planted with verdant tropical foliage. These still exist in many of the old towns, principally Kuala Lumpur, Penang and Malacca. They are characterised by thick brick walls and high ceilings. Some are very dilapidated or even abandoned, while others meticulously maintained and thoroughly modernised.

It can be seen that only the first two categories use timber widely as construction material while the use of timber has been limited in the other house types. Our building code classify timber buildings as "temporary" and therefore not approved for "permanent construction". The average Malaysian thinks of timber buildings as for the poor villagers or the urban squatters. Thus, the advent of urban growth and the introduction of western technology have helped to degrade timber from a traditional principal source of construction material to the level dispised by the affluent, modern and progressive sector of the population. Presently public prejudice against high-quality timber buildings is very strong. The recent promotion of timber construction by the government has not met with appreciable public response.

Footnote

"living quarters"¹ - the term refers to "those structures built or converted for living/sleeping and those structures not intended for living/sleeping but used for that purpose at the time of the census" as defined by the 1970 Housing and Population Census.



3.0