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SOUTH INDIAN VERNACULAR ARCHITECTURE - A EXECUTIVE SUMMARY

P. Satheesh Kumar^{1*}, C. Sivasubramanian¹, M. Jeganathan² and J. Ashok³

¹Department of Environmental and Herbal Science, Tamil University, Thanjavur - 613 010,
Tamil Nadu, India.

²Designed Environment Academy and Research Institute, Trichy - 621 213, Tamilnadu, India.

³Department of Architecture, Periyar Maniammai University, Thanjavur - 613 010, Tamil Nadu, India.

Abstract

Vernacular Architecture is increasingly becoming a subject of major interest not only to architecture theorists, but also to designers and technologists for very many good reasons. It has now become very apparent, that although technological advancement brings modern civilization to our communities, it also accelerates the disappearance not only the style of life which has been developed over a span of many centuries, but also the very veins of cultural identity which are so vital for the survival of any society. The onslaught of modern technology has robbed our communities of the construction skills and environmentally sensitive design of their dwellings. "Modern Architecture" is becoming more and more environmentally unfriendly not only to people, but also to the surrounding natural environment, including the excessive use of energy in cooling buildings. That is why we have to revert back to vernacular architecture to see how we can be salvage the vernacular principles and use them in sustainable architecture. There has been a turn around after years of environmentally unfriendly materials and bad architecture to sustainable building materials and construction methods.

Key words: Environment, Vernacular Architecture, Modern Architecture and South India.

1. Introduction

Vernacular architecture tends to evolve over time to reflect the environmental, cultural and historical context in which it exists. It has been often dismissed as crude and unrefined, but also has proponents who highlight its important in current design. Vernacular architecture is an area of architectural theory that studies the structures made by the empirical builders without any intervention of professional builders. It was evolved in the manner as it reflects the environment, cultural, technological, economic

and historic context in which it exists. This architecture still plays a role in architecture and design, especially in local region (Paul Oliver, 1998). Simpler than what the technology of the time is capable of maintaining and characterized by inexpensive materials and straightforwardly utilitarian design which makes use of common regional forms and materials at a particular place and time (Alejandro Bhaman, 2013). Tends to be common place and to reflect the everyday life and experience of people within a culture or region and it is often called 'ordinary' or 'traditional' built environment.

*Corresponding author: P. Satheesh Kumar

E. mail: jegann1978@gmail.com

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2. Paleolithic Period

This was the type of architecture invented by the primeval man to get shelter and protection from variable extreme weather and conditions and from wild beasts and enemies. No buildings for any special purpose but dwellings were made and the shelters they built were all from locally available materials or from the dead animals like bones and skins. Structures created in wood and stone and fire used on paved earth. The types of shelter they built were:

Huts: They were oval in shape and size varying from 8 m – 15 m x 4 m – 6 m which is built close to sea shores mostly used materials are stakes with stones as supports and stout posts along axis and floor made of organic matter and ash.

Molodova: A more sophisticated sought, wood framework cover with skins, held in place by rough oval mammoth bones, enclosing 15 hearths.

Dolnivestonice: Palisade of mammoth bones and tusks set into ground, filled with brush wood and turf. They were oval shape and limestones were used for walls with central hearth capped with an earthen dome with osts.

Lean to: Consisted of foundation wall of mammoth jaws and long bones capped with skull and roofed with tree branches, overlaid by tusks.

Tents: Skirt weighed down with pebbles with paved interiors and open air hearths. Wooden posts driven into earth covered with skins at a later stage were secured by reindeer antlers.



Fig – 1: Huts and molodova with vernacular material

These houses were entirely made up of local materials or from the organic matters from dead animals such as animal skins, bones etc.

3. Mesolithic Period



Fig - 2: Pit houses

Villages arranged systematically by grouping them in a particular area and houses aligned in rows for easy access. More regular and similar plans were used and artifacts came into existence, settlements began around water bodies so dwellings were more durable as compared to



that in the Paleolithic age thus evolution has started from Paleolithic to Mesolithic age with certain development based on shelters in order to protect them and also for safe living. The types of shelter were:

Huts: The structure mainly comprised of bamboos and plans were trapezoidal in shape with the size varying from 5.5 m – 30 m and entrance provided widely facing the water bodies and floors were plastered with lime with posts were reinforced with stones.

Pit houses: Shallow oval pits 6 m – 9 m long with the roofs made of timber and stone hearth were used as working slabs.

4. Neolithic Period



Fig - 3: Long house for multipurpose functions

The new Stone Age like the Old Stone Age, the people of the new Stone Age used stone for tools and many changes took place whereas entire evolution took place. Dwelling became more sustainable (Camille Wells, 1990). Houses were built with square or rectangular plans, with sections divided with animal skins. They started to divide into rooms according to its purposes, timber structures became popular and they began to produce narrow shaped structures for the better usage of area. The type's shelters were:

Timber frame house: Square in plan with 25' X 25' and mud walls were mostly used with 3' deep footing. These were more durable when compared to earlier ones. Pitched and thatched roofs with overhanging eaves. Interiors raised, plastered with sunken hearths.

Long houses: Rectangular in plan and oak posts made the framework covered with clay, floors were defined with layer of clay over a base of logs. It consists of three types of plans. They are tripartite, bipartite and single bay houses.

5. Case Study

It began as an effort to bring the hidden wealth of south India to light - to set up an institution to celebrate myriad cultures of the numerous people of south India. In an area when the old and traditional are vulnerable and challenged, this nucleus of an idea triggered a cultural journey. Laurie Baker - the renowned architect graciously donated his service to the foundation. The spatial conceptualization at Dakshin Chitra and his building techniques and process breathe his philosophy of empowering masons and crafts people in the building process. It is a showcase of traditional architecture of South India. The architecture of each of the states namely, Tamil Nadu, Karnataka, Kerala and Andhra Pradesh has been carefully relocated to this site. The journey to understand the each culture, lifestyle, profession and architecture is clearly visible through the building of each region.

6. Kerala Houses

The architecture environment and culture of Kerala stand in marked contrast to that of Tamil Nadu. Kerala is blessed with abundant water, verdant forest and rich lands. Unlike the Tamilian, the Keralite prefers to live isolated from neighbors in the middle of a plot of land, with privacy and beautiful tropical vegetation. In Kerala houses, technique, form and materials are basically the same for all class and economic levels. Only size are addition of the more buildings to a compound separates the rich from the poor. Within Kerala there is a clear division of style of architecture between Malabar in northern Kerala and Travancore in Southern Kerala. In Southern Kerala, wood was the primary building materials and homes remained primarily single stored until the end of the 19th century. The most distinctive visual form of Kerala architecture is the long,



steep sloping roof built to protect the house walls and to withstand the heavy monsoon.



Fig - 4: Kerala vernacular houses

7. Karnataka Houses

The architecture of Karnataka is as varied as its geography, with its verdant coastal area to the west; the richly wooded hills of Chikmangalore and Shimoga, the bamboo forests and plantations of the fertile farm land of the south, the semi arid zones of the east and central districts and the vast stony, dry areas of the north. The name of one of the main districts, Gulbarga, is said to have come from Kalbargi, which means stony land or a heap of stones. Where the Deccan plateau joins the Nilgris in the southwestern region of the state, timber is in abundance. Stone is the major building material for most of the North Karnataka. Mortar is generically mud. A major feature of Northern Karnataka agricultural homes is the inclusion of a space for their cows and goats within the home itself.



Fig - 5: Karnataka vernacular houses

8. Tamil Nadu Houses

It has a long sandy seacoast and a vast expanse of semi-arid plains, once covered with scrub forests, grass and groves of bamboo. Water was scarce and wells per village were few in numbers. Families clustered together, to be close to each other and to the source of water. Wood was never in abundance, but was used for columns and beams. Rafters and reapers were usually of bamboo. The pride of each house was the front door and this was carved and decorated to be as welcoming and auspicious as could be. Trees were felled from nearby, preferably from the house owner's own compound. The village set rules where trees could and could not be felled.

The carpenters made the bullock carts and the ploughs and all that was necessary for agriculture and house building in the village. They were helped by the blacksmiths who made the hinges and the nails, the locks for the doors and the special fixtures for the carts. The potters made the terracotta roofing tiles floors were most often



made of rammed mud, finished with the red oxide, coating are cow dung slurry. Walls were made of sun dried or baked brick or mud which were also regularly treated with the cow dung slurry, which kept the bus away with its antiseptic properties. Most tamil houses have an inner courtyard which is used for drying grains, shelling pods and for functions. There is a raised verandah or small area in the front of the house, called a tinnai.



Fig – 6: Tamil Nadu vernacular architecture houses

9. Andhra Pradesh Houses

It consists of three districts regions. The Rayalseema area is part of the Deccan plateau and for the most part consists of dry and stony land. Cuddapah, a black slate used for flooring shelving and even roofing, derives its name from the town of Cuddapah from where it is mined. Stone and mud are the main building materials in this area. That is the most prevalent roofing materials. The Nizam's region or Telangana comprises of Adilabad etc. The Muslim rule of the kingdoms here had a major influence on the architectural form. Agricultural communities built with the materials at hand in simple forms, which are convenient to their lifestyle, for the protection of

their livestock, for storage and for security. The skills of the builders and crafts people are evidenced in the meticulous workmanship of stone buildings.



Fig - 7: Andhra Pradesh vernacular architecture houses

10. Building Plan

Building layout is an essential factor that influences and drives the planning of vernacular structures. The archetypal shape of a building plan is correlated to many cultural, historical, and urban planning traditions. Three main types of shapes that has been identified for plans in traditional buildings:

- Circular plan is most preferred in case of earthquake resistance, for example the Bhonga Houses
- Rectangular plan
- Linear plan



11. Building Size

The second facet of Indian vernacular architecture is the size of the building. The size of the building is ruled by its particular use. Based on the size of a building, they can be classified as Single story and Multi-story buildings. The mixed use buildings necessitate construction of an additional floor, which calls for increased wall load - bearing capacity, especially if these walls also need to withstand earthquake effects. It should be noted that the building size is also related to the population pattern and housing density in a given area.

12. Indigenous Materials

The third aspect influencing the development of vernacular construction practices is the availability of local building materials. In many areas, the local resources have governed the use of the following constituent materials for walls:

- Adobe (mud blocks or whole walls)
- Masonry (stone, clay, or concrete blocks)
- Timber

13. Materials

Vernacular Architecture is all about using locally available materials for construction. The most common materials to be used are:

Timber – It is one of the most frequently available and natural yet native building materials. Of the various advantages, it is non- toxic, does not leak chemical vapor into the building and is safe to handle and touch. It is quite easy to work with, renewable, a very good insulator and readily available.

Adobe – It is a natural building construction material that is made from clay, sand, water, and a kind of fibrous or organic material (sticks, straw or manure), usually shaped into bricks using moulds and dried in the sun.

Stone - It is another one of the major building materials that is indigenous for Indian architecture. It is a versatile material and it can be

used from the foundation to the parapet in a building.

Clay - It is used for buildings sustainable, traditional buildings. These buildings are of 2 types: one when the walls are made directly with the mud mixture and the other being walls built by stacking air - dried building blocks called mud bricks.

Rammed earth – This type of building construction which utilizes natural raw materials such as earth, chalk, lime or gravel. Rammed-earth walls are simple to construct. They are non - combustible, thermally massive, durable and very strong.

Fly ash – Sand lime - Gypsum Bricks – They are used for residential housing walls and all other types of building construction as well as boundary walls. They are environment friendly, excellent strength, dry quickly and have reduced water absorption and shrinkage.

Compressed Earth Blocks - Energy efficient, eco-friendly with excellent surface finish. It is a cost effective material with good thermal insulation.

Clay Fly ash Burnt bricks – Environment friendly, energy efficient and locally manufactured material.

Micro concrete Roofing Tiles - MCR tiles are a cost effective and extremely versatile roofing material. MCR tiles can be used to make attractive roofs on villa houses, farm houses, pavilions and gazebos and also used in highway constructions. In regions with heavy rainfall, these tiles are used at length for cladding material as it offers both waterproofing and aesthetic appeal. It has been used expansively in cost effective housing schemes, poultry farms, restaurants and workplaces (Lindsay Asquith, 2005).

14. Conclusion

The changes in culture and architecture are reciprocal. The impact of one is reflected on the other. India's rich cultural heritage is vanishing



due to the influence of urbanization and globalization. In order to protect and conserve our rich cultural and architectural heritage the elements of vernacular should be incorporated in the contemporary planning and architecture. The provision should be made to incorporate vernacular architecture and traditional knowledge in the policies. The policy makers, planners and architects should consider this in their work for betterment of society.

The paper concludes by learning and appreciating the principles of vernacular architecture and integrating them with the contemporary knowledge and technology. Quality of life is enhanced through good architectural design which responds to the needs and wishes of users and use of natural materials and good urban design which allows creation of green spaces and reduction of noise and pollution. With the world evolving, everybody and everything is changing, it is important to keep up with the tides of time. However, keeping up with the modern time does not mean forgetting our past and traditions. Traditional Architecture using the indigenous, vernacular materials and construction techniques not only keeps our traditions alive but also contributes to the economy and environment. Vernacular architecture is also sustainable architecture because it uses natural, easily available materials.

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