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Influence of Vernacular Architecture in Contemporary Buildings

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***Abstract*— The architectural practice across the globe has evolved with various dimension whereas the origin and the initial form of the builder structures which was made in any region was known as vernacular architecture and the evolution in architecture was made in terms of design materials topologies which lead to different styles of architecture known contemporary architecture where vernacular architecture was based on need of mankind with has a connection between the environment and individual personal this paper is all about to study and critic the implementation of vernacular practice in contemporary buildings of Tamilnadu. The qualitative method and case study method of research are adopted. The purpose of the study is to understand the implementation of vernacular practice in contemporary buildings of Tamilnadu. These spaces have various elements. According to the differing usage, these spaces express various vibrant forms as active and inactive spaces with different components. The inference obtained will be useful for the architects and planners to collaborate vernacular ideas to enhance the contemporary buildings with vernacular context. This is a study where we analyze the vernacular elements of Tamilnadu Architecture – a staple and characteristic feature of the style, and its modern time adaptations.**

Keywords – *Vernacular architecture, contemporary architecture, Tamilnadu architecture,Chettinad architecture Materials.*

I. INTRODUCTION

Contemporary and vernacular, one word being quite the opposite of the other, what is the significance of blend of these two in architecture? Contemporary refers to highly advanced, modern and latest type of architecture. Contemporary architecture is a wide spread architecture style which is based on advanced materials. On the contrary, vernacular refers to traditional architecture with simple and practical techniques which makes it the elementary form of meetinghuman needs. It is completely based on the use of local raw materials which will vary from region to region.

The building industry has moved towards constructing sustainable methods of building architecture where technology has become an overriding factor in making the building sustainable, such buildings are sometimes seen as visually futuristic.

Due to changing needs, requirements, the new materials and construction process - shaped today's - built environment -irrelevant to our context and climate.

Therefore, others that have resorted to adopting local vernacular practices that aims to minimize adverse environmental impacts and promote resources eco efficiency and cultural identity of place. Therefore, this study will look at the kind of sustainable practices adopted in contemporary building

II. BACKGROUND STUDIES

A. Vernacular Architecture

Vernacular architecture is very local. It is a style that reflects the regional culture. It is also practical because it uses locally available materials as building materials. And, the style is dependent on the regional climate, so expect a building that adapts to the local natural environment of the place.So I probably would say that vernacular is quite restrictive, for a building depends onwhat the local culture and climate has to offer.

B. Contemporary Architecture

Contemporary architecture is the architecture of the 21st century – the current style ofarchitecture. Also, it reflects our current view, that is, being open and inclusive to ideas. In contemporary architecture, no style is dominant, everything can be included. In other words, there is no stopping to the ideas that contemporary architecture can offer.

C. Contemporary and Vernacular Architecture

Usually, nature seeks balance, so does design. Here, contemporary vernacular architecture tries to balance what contemporary and vernacular architectures have to offer. In this design, the dynamic and innovative design concept meets with the traditional andpractical design concept of the region.

D. Origin of Vernacular Architecture

The desire for an extensive approach of contemporary architecture hides the achievements of the past or the vernacular style. Vernacular style originated when humankind was necessitated to make use of raw material around him. The urge to provide themselves shelter and comfort which would be responsive to theclimate and which would be a shield from other things led to the origin of this traditional architecture. Traditional way of making is a genuine response of an individual person's or society's building needs. And this has helped the human beings to construct shelter according to their circumstances.

E. Importance for Contemporary Vernacular Approach

The efficacy of climate responsive architecture will be visible through minimized costs of utilities and maintenance the application of vernacular methods to modern design; will allow a structure to be a self-sufficient building which can ideally achieve net zero energy use. The application of vernacular architecture has been understood and highly appreciated throughout the large part of history, declined during the modern era, and now making a return. To gain knowledge of the past and use these strategies in balance with contemporary style is a must to progress in the field of making energy efficient sustainable buildings.

III. EXPERTS ON TRADITIONAL ARCHITECTURE

CHRISTOPHER ALEXANDER

In Notes on the Synthesis of Form

In an influential study , Christopher Alexander identified unself-conscious design in traditional culture(hence good) and self-conscious design with modern cultures(hence bad).Alexander's thesis was that traditional cultures were more likely to evolve stable equilibrium with their environments by virtues of their unself-conscious than the modern cultures ,which by their nature were inherently unstable. He argued that the conceptual structures or mental pictures that distinguished the self-conscious culture were deeply corrupting and only serves to get in the way of such equilibrium, preventing the more direct relationships that more primitive cultures obtain with their environments. Consequently, the only way to restore architecture to its former traditional values and qualities was to modern (self-conscious) design procedures, cutting out the architectural middleman and substituting more objective and logical procedures.[4]

AMOS RAPPOPORT

In House Form and Culture

In his analysis on the determining and modifying factors of house form he suggests that vernacular buildings express "the needs and desires of people and the requirements of the cultural and physical milieu without the interference of artistically self-conscious designers. If we regard buildings as the result of the interaction of:

Man - his nature, aspirations, social organization, world view, way of life, social and psychological needs, individual and group needs, economic resources, attitudes to nature, personality, fashions

- his physical needs, i.e., the "functional" program
- the techniques available

Nature - physical aspects, such as climate, site, materials, structural laws, and so on

visual, such as the landscape then the influence of man, particularly his personality, both in primitive and vernacular building is less than we commonly find in our culture. and such influences as do exist are not individual or personal, but of the group—and limited at that. Building of this type tends toward a state of balance with nature rather than dominating it, which further reinforces its superiority over the grand design tradition as a topic of study for the relation of the built environment to man and nature."

All housing needs to achieve four objectives in order to be successful;

1. It needs to be socially and culturally valid. (Here traditional housing possibly works best.)
2. It should be sufficiently economical to ensure that the greatest number can afford it. (In primitive and vernacular contexts most, if not all, people have houses.)
3. It should ensure the maintenance of the health of the occupants.

(In relation to climate traditional housing succeeds, in relation to sanitation and parasites itusually fails.)

4. There should be a minimum of maintenance over the life of the building. (Here the evidence is equivocal.)

If we accept that the utilitarian functions of the house are not primary, and at the same time realize that even those functions may be better satisfied traditional housing than by new housing in many areas, our altitude toward traditional housing may change.

Traditional may therefore be much more acceptable — if not in fact, desirable — than has been assumed ,and housing attitudes in developing countries should possibly be adjusted accordingly. At the very least this offers fruit field for research.

After analyzing the primitive and vernacular architecture of various cultures to determine the dominant factors governing the house form he concludes saying, "Our era is one of reduced physical constraints, result is the problem of excessive choice, the difficulty of selecting or finding constraints which arose naturally in the past and which are necessary for the creation of meaningful house form. This great freedom of choice, and the fact that house form can now be the domain of fashion, suggests the general validity of the concept of criticality and the primacy of socio-cultural factors, and all that this implies for the understanding of house form, as well as its choice. However, we act as though criticalities were high and close fit to physical "function" were essential. I have already commented on the unspecialized nature of vernacular buildings and their consequent success over time. There may lie the great lesson of vernacular building for our own day—the value of constraints to establish generalized, "loose" frameworks where the

interplay of the constant andchangeable aspects of man can find expression"[4]

GEOFFREY BAWA

The Complete works

"The beauty of some of the traditional buildings , gardens and landscape leaves a considerable residue of the subconscious understanding in the mind —a help to solve some present needs for the right placement of a building on the site ; for the need to frame emphasize a view to open or construct a space ; a wish to get a definite degree of light or shadow in a room."
Geoffrey conceded that this so-called vernacular architecture had an impact on the development of his own philosophy. [4]

HASSAN FATHY

The language of traditional architecture

"The quality and values inherent to the traditional and human response to the environment might be preserved without a loss of the advances of science. Science can be applied to various aspects of our work, while it is at the same time subordinated to philosophy, faith and spirituality",
Employing energy-conservation techniques, six fundamental principles underlie HassanFathy's work:

- Belief in the primacy of human values in architecture
- Importance of a universal rather than a limited approach
- Use of appropriate technology
- Need for socially oriented, cooperative construction techniques
- The essential role of tradition
- The re-establishment of national cultural pride through the act of building

In his book An Architect for the People, American architect James Steele wrote of Fathy, "rather than believing that people could be behaviorally conditioned by architectural space, Fathy felt that human beings, nature, and architecture should reflect the personal habits and traditions of a community rather than reforming or eradicating them. While he was certainly not opposed to innovation, he felt that technology should be subservient to social values and appropriate to popular needs"[4]

LAURIE BAKER

Laurie Baker has worked in India for over forty years now. He is one of the very few architects who had the opportunity and the stamina to work on such a remarkably varied spectrum of projects ranging from fishermen's villages to institutional complexes and from low-cost mud-housing schemes to low-cost cathedrals. In Trivandrum alone he has built over a thousand houses. Besides this, his work includes churches, numerous schools, institutions and hospitals. It is not only the, number of buildings that Laurie Baker has designed find the range of architectural commissions he has executed that sets him apart from other architects. What makeshis work even more remarkable is the way in which he draws creative sustenance from the environment in which he works, absorbing vernacular patterns of construction and individual styles of living to such a degree that he is able to give his clients the comfort and care of homes and institutions that are firmly rooted in the soil upon which they stand. All this is done keeping in mind the special needs of those who will inhabit or use these places.In the designing of these varied projects. Laurie Baker takes half-forgotten vernacular patterns of design and construction from the rural setting to dislocated urban residents whose building choices arc of limited to the unsuitable structural concepts discarded in the West every building that Baker designs, he asserts the appropriateness of traditional construction to local conditions, adapting existing loc available materials and traditional methods to contemporary structure. In both, his work and writings, Baker emphatically rejects the 'international style' that lingers so perniciously in India. He believes that individual needs stem from India's diverse environment, The varying cultural patterns and lifestyles; and he feels these needs must he met through an architecture which is responsive to local materials and expresses itself in many different forms . Mass housing and emphasis on the improvement of living conditions is all a result of the new industrial economy. Humanistic considerations are no longer the primary logic for the evaluation of design. This has led to a break from tradition and given us an increasing number ofimpersonal, anonymous buildings. Unfamiliarity with this new kind of architecture adversely affects the psyche of the people inhabiting it.
Though Baker is not a founder, practitioner or product of the modern doctrine in any sense, he has in own career, demonstrated similar concerns. But unlike the movement, in his Endeavour to improve living conditions architecturally he seeks a purposeful link with tradition. He re-establishes the use of traditional construction without the actual imitation of traditional styles.
His use of these materials. strikes an unusual compromise between traditional practice and modern principle—thus deftly illustrating how contemporary requirements of the house can easily be met by such an adaptation. Baker looks upon the imitation of foreign techniques of building and the superficial superimposition of Indian details as aspects that only exaggerate thepoverty of the country's architecture.
He seeks to convey the conditions of a place through the medium of building; the medium may be the material, the design or the technique of construction, but in so doing every project also makes a larger statement of the society in which it is set.
There are also striking similarities in the works of Hassan Fathy and Laurie Baker. Both have taken on the role of architectural crusaders. Both consider themselves as only brief sparks in the light of historical continuity. Both have expressed this belief through the education and training of craftsmen, and the re-orientation of their craft to

contemporary purpose—the methodical inculcation of pride of labor and quality which they felt necessary in order to systematically uncover all but forgotten techniques of construction.But while Fathy's buildings have been looked upon as those of an eccentric and an incurable nostalgic, Baker's buildings have an aura of quiet assurance, which comes as much from their economic expediency as from their expressive strength—the ability to transform traditional ideas into a wholly contemporary usage.[4]

PAUL OLIVER

The Encyclopedia of Vernacular Architecture of the World

- He believes that 'traditional wisdom and lore in building, using renewable resources andindigenous skills, may still offer wisely managed, economically effective and culturally appropriate solutions to the world's housing needs'. Through the use of locally available resources and the application of traditional technologies that respond to regional climates, vernacular traditions are environmentally appropriate, sometimes in the most extreme circumstances. At the same time, vernacular traditions are appropriate in social and cultural terms - the skills and knowledge needed to maintain them being handed down and adapted as necessary through generations, the design and use in keeping with the norms, values and beliefs of their builders and owners.
- The close relationship between vernacular houses and their owners' identity is instrumental in the constitution of social, cultural or ethnic unity and pride.
- This is of majorimportance to peoples and cultures confronted with the effects of globalization and modernization.
- If the present and future global housing needs are to be met in environmentally and culturally sustainable ways, the vernacular architecture of the world will need to be recognized and supported.
- Not only will the vast majority of the world's population be living in vernacular housing, there is in fact much to learn for Western architects and builders from the knowhow andskills of vernacular builders.
- Of course, supporting vernacular architecture does not provide an easy solution to the huge problems at hand.
- In many cases, issues of sanitation and servicing will need to be addressed if they are to match current demands, while depletion of resources and changes in climate will require adaptations of materials and design. Yet, the enormous body of experience, skills and wisdom of the world's vernacular builders should not be discarded or neglected. An exchange of knowledge will have to be established between vernacular builders and modern architects and planners that is truly bilateral, allowing for the cross-fertilisation of ideas and practices and a combined approach to the huge task of housing the world.[4]

IV. TAMILNADU VERNACULAR ARCHITECTURE

It has a long sandy seacoast and a vast expanse of semi-arid plains, once covered with scrub forests, grass and groves of bamboo. Waterways scarce and wells per village were few in numbers. Families clustered together, to be closet 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 beas 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 thinnai.

Fig 1 Tamil Nadu vernacular architecture houses

A. Climate

- Tamil Nadu is heavily dependent on monsoon rains, and thereby is prone to droughts when the monsoons fail.
- The climate of the state ranges from dry sub-humid to semi-arid.
- The state has three distinct periods of rainfall

B. *Culture*

- Tamil Nadu has a long tradition of venerable culture. Tamil Nadu is known forits rich tradition of literature, music and dance which continue to flourish today.
- Unique cultural features like Bharatanatyam (dance), Tanjore painting, and Tamil architecture were developed and continue to be practiced in Tamil Nadu.

C. *Karaikudi – Chettinad House*

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- The state has three distinct periods of rainfall

D. *Architectural Style*

- Traditional style using the principle manayadi shastras, an ancient treatise on construction.
- Amalgamation of Indigenous and European style

V. ORGANISATION AND USAGE OF SPACES

RECEPTION

This being the introductory space to the house, it is designed to express the grand image of the owner. Located in front of the house, it has level variations and is used not only to receivevisitors but also for relaxation.

PATTAGASALAI

This elevated space is used both for relaxing at normal times and for confidential dealings. Its sanctity is protected by the difference in level. It also serves as an elevated seatingarea during ceremonial occasions. This space mixes with the central space.

MULTIPURPOSE CENTRAL OPEN SPACE

Located amidst the rooms and close to often used semi-public and commercial spaces, this area exists as the first stage of private spaces. It answers the need for desired introverted planning, though the flexibility of its nature allows it to undergo extreme change, creating a festive space for ceremonies when necessary.

FRONT VERANDA

Front thinnai is used by the men to hold informal discussions and also to receive visitors and guests. The verandah is also used for business such as pawning. Such usage restricts the circulation of visitors inside the house.

MUTTARAM AND PATTAGASALAI

One of the salient features of the chettinad houses that emphasize the introverted nature of planning is the muttaram (main courtyard) which is surrounded on the sides by aisles with roofs sloping down into the court.

The main courtyard is used for drying paddy and the aisles are used for chatting and sleeping. The pattagasalai (inner thinnai) is used by men for sleeping and for discussing family matters. The aisles lead to the ullarai and veliarai (secret cellars). During festivities the muttaramwas used asthe wedding space in the earlier phases of planning.

The aisles surrounding the courtyard were used for seating, while the pattagasalai seatedthe melakarar (musicians).

KALYANA KOTTAGAI

This is primarily used as the main living space but gets converted into the wedding hall during marriages. The central double- storied hall is used as the thirumangalya medai (marriage stage) and seating place for women during muhurtams. The high ceiling and the polished granite columns provide the required grandeur to the place. The surrounding aisles are used for keeping the seervarisai (dowry) and by the melakarar (musician). The area has direct access to the bhojana hall so that the guests could proceed to the dining hall as soon after the muhurtham.

SERVICE AREA

These comprise a double courtyard with 4kitchens in the front and 4 storerooms (2 metres on each side). The corridor spaces around the courtyards are used as preparation spaces during festive occasions. The circulation of the cooks is restricted to the service areas. The courtyards which open to the sky resolve the problem of lighting and ventilation and clear off the smoke and other pollutants from the kitchen. There are steps to the first floor where the whole plan is repeated.

This area has direct access to the street to be made use of by the servants and often serves as the servants' quarters. The insignificance of the space is reflected in the lack of craftsmanshipis its columns which is in sharp contrast to the rest of the house.

SERVICE YARD

This comprises a central courtyard divided by a passage around which is the serviceThazhvaram. A well (Keni) which is located in the courtyard is used by the woman and the servants. On both extremes are spaces meant for storage of unimportant material, sand vegetables.

The twin house of formed by two adjoining houses which, on occasions, share resources.Use of space differs from the single house primarily in the double courtyard and *Bhojana* hall.

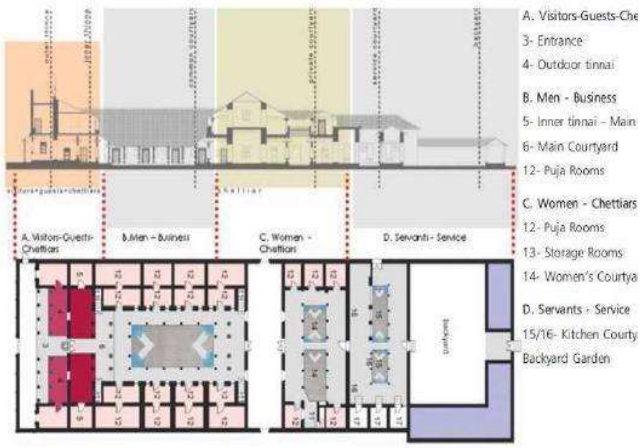
DOUBLE COURTYARD SPACE

At normal times when the main bhojana hall is not used, the double courtyard and the space surrounding it is used as the main dining space and the side rooms are used as storage spaces.

During festivities, the space gets transformed into a preparatory space, the food prepared in the kitchen is stored in the adjacent room to be served in the bhojana hall. The courtyard spacecould be used as a waiting space and also for hand washing.

BHOJANA HALL

This is a dining space common to the two houses having an entrance from the street. It has a central courtyard surrounded by aisles with roofs sloping into the courtyard. The open courtyard provided both lighting and ventilation and enhances the quality of the space. The area has accessibility from the washing and preparation areas of both houses and can thus cater to a very large crowd of about 150 people, reflecting the self-sufficient nature of the Chettiars



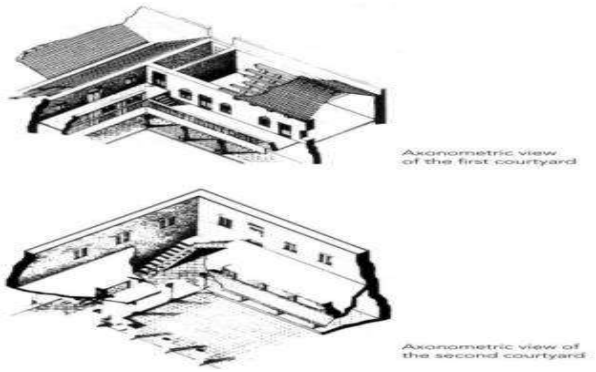


Fig 2 Tamil Nadu vernacular architecture houses plan

The three courtyards in the house have varying degrees of ornamentation due to their usage. The first courtyard is open to visitors as well as inmates of the house and hence has a lavishly decorated interior courtyard facade. The columns resemble the village temple columns, except in their materials-here they are of Italian marble stone or Burma teakwood, which indicates the high status of the family. All the wooden members are highly polished to ensure their endurance. The parapet detailing is very intricate. Similar intricacy in detailing can also beseen in the doors around the first courtyard.

The second courtyard shows less detailed facades compared to the first as it is usedmainly by the women. Materials used here are mainly asbestos and stone

The third courtyard is a service court and is almost bare. However, drainage is given importance here with gutters running along all four corners. The elaborate cornices are of flat brick corbelling while the ornamental moldings are of a fine mixture of aggregates in thick lime, reinforced with coconut strands. A special quality inner plaster popularly known as Chettinad plaster, which consists of lime mortar, jaggery and egg white, is used for the walls. It gives a smooth off-white finish to the walls, which are then painted in shades of red, navy, blue, brown and green obtained from vegetable dyes

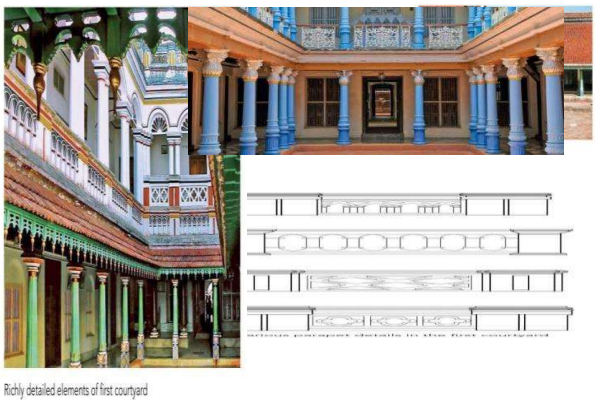


Fig 3 Environmental Management through the Courtyard

VI. TAMILNADU VERNACULAR ARCHITECTURE AND ITS ADAPTATION IN THE MODERN CONTEXT

CASE STUDY- BALA RESIDENCE, MANNARGUDI

This residential is located in mannargudi. It has been built with cost-effective materials such as sun dried bricks, concentrating on getting the right quality of workmanship. Built a residence, it includes a individual space, office space, pool space and amenities for entertainment. This residence is an example of contemporary lifestyle with vernacular systems ofconstruction.

Fig 4 Bala Residence at Mannargudi

A. Doors And Windows

The large doom and windows made of Pyinkado are a prominent feature. They are largeenough to draw in sufficient

air and create currents for cram ventilation for thermal comfort, which is a specific feature of the design.
The doom and windows bring in natural light and the view of the garden outside, to add to the feeling of spaciousness of the inside, another design feature of bala residence.

Fig 5 Doors and Windows

B. Interiors

Traditional vernacular elements implemented in the interiors for the building. They have used elegant antique furniture which they collected over two decades and perfectly blended with the wooden colored floors, brilliant yet subtle furnishing, carpets, and creative lighting.
The timber staircase, a design feature in the dining room, has beautiful handmade clay tiles from Mexico, used as risers and a Spanish style handrail.

Fig 6 Interiors

C. Verandah

A veranda speaks through its size and appearance. The front veranda at bala house is six feet wide and appears sufficient to serve as a welcoming space. In comparison, the rear veranda is 14 feet wide, giving it a languorous air, and with the surrounding garden it is secured from the public gaze, indicating that it is an ideal living space.It is also encircled by the flowering plant of the preserved orchard, still frequented by birds, bees, and squirrels and it overlooks the Idly pond and surveys the entire front yard

Fig 7 Verandah

The rear veranda at the residence is in fact the transition area between the inside and the outside, its elements being intimately connected to both, in terms of use and mood.
The materials used are in tune with the interior and yet they hardly suit the weatherconditions of a semi covered area.
It is bounded both by the house and by the back garden. In all, the tear veranda, with itsunique message is an important focus of the house and it could be said that it takes the place of the courtyard, which was the main interactive space in traditional houses.The old courtyard was open to the sky, bound on four sides by the house, often with averanda running a round.

Fig 8 Verandah

In drawing up the plan, the concept of blending traditional and contemporary elements, co create a style that might be termed ‘timeless‘ was consciously followed. Such a concept naturally encompassed the features of climatic comfort, cost effectiveness, eco- friendliness, and sustainability of the building. The open plan facilitated the creation of a sequence of spaces and the use of a variety of elements throughout the building. the sequence of the building, beginning with the entrance and the public areas leads to the large rear veranda, designed to contrast the rigidity of city life and provide a private, sheltered feeling.

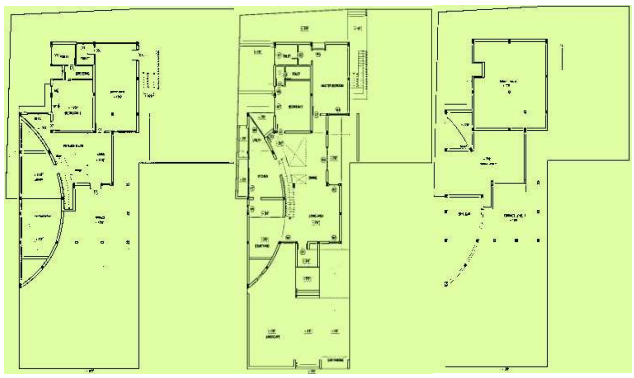


Fig 9 Floor Plans

VII ANALYSIS

ANALYSIS FOR TRADITIONAL BUILDINGS AND MODERN BUILDINGS

Ventilation of Roof Spaces

Roofing materials (thatch and palm leaf) work as good thermal insulation with its various layers. In addition, the opened pediment improves roof ventilation.
Roof spaces are insulated by frapped air instead of being ventilated.

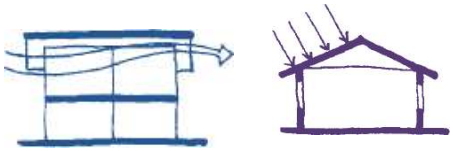


Fig 10 Ventilation of roof space

Vegetation

Tall and dense foliage allows effective ventilation for the houses and effective shadows during the day, keeping a cool environment in the villages.
Often, because of the limited size of the compound and the need to provide privacy, only hedges and small trees are planted. Thus, the passage of winds at the house level is reduced or blocked considerably.

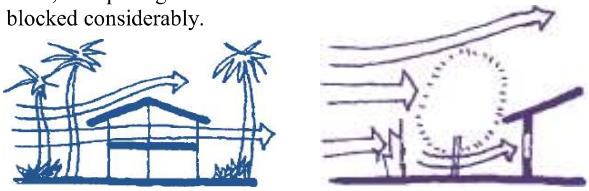


Fig 11 Vegetation

Cross Ventilation

Split opened bamboo walls allow cross ventilation through the house and all spaces as well.
The houses' plans often are complicated shapes and spaces, and the partitioning of the house into different rooms and areas restrict air movement and cross ventilation.

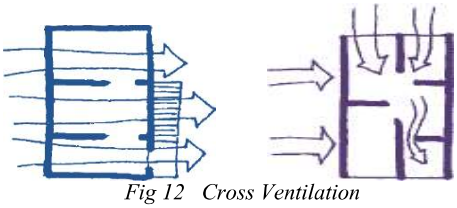


Fig 12 Cross Ventilation

Wind Velocity Gradient

The wind speed increases with altitude. The house, sitting-on-stilts, captures winds of higher velocity at a higher level. This is especially vital in areas where there are plants covering the ground, which restricts air movement.
The modern house often emphasizes saving materials by building short dwellings with low ceiling spaces. These elements reduce considerably the ability to take advantage of high velocity winds.

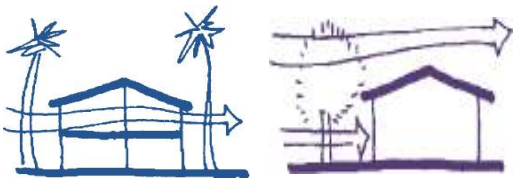


Fig 13 Wind Velocity Gradient

Urban Layout

Vernacular houses are randomly settled. This enhances cross ventilation by high velocity winds throughout and between the houses.
Orthogonal arrangements of housing estates houses create barriers that block wind circulation throughout and between the houses
.

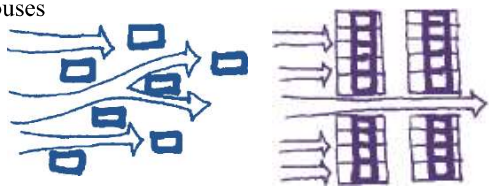


Fig 14 Urban layout

Overhangs

Large overhangs provide good protection for driving rain and avoid direct sun radiation contact with vertical walls and windows. The higher and larger exposed vertical areas of the windows are often penetrated by direct sunlight and cause considerable discomfort. The walls which act as direct sun shading devices get heated up and in the evenings reradiate heat into the interior spaces.

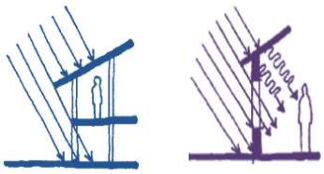


Fig 15 Overhangs

Orientation

Houses are oriented considering sun trajectory(east-west), thus major wall surfaces are facing north-south.
The houses often disregard orientation for minimizing solar radiation and the orientation often becomes a puzzle of fitting the most units into the site.

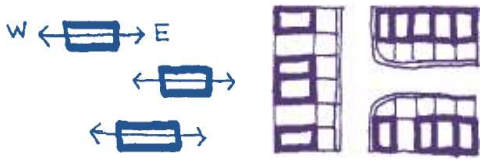


Fig 16 Orientation

Building Materials

Vernacular houses use lightweight construction ofwood and other natural materials. Low thermal capacity materials hold low heat and cool effectively at night.
Modem houses use CMU blocks, concrete, zinc, and other materials of high thermal capacity. These materials store heat that reradiates into the house during thenight, causing thermal discomfort

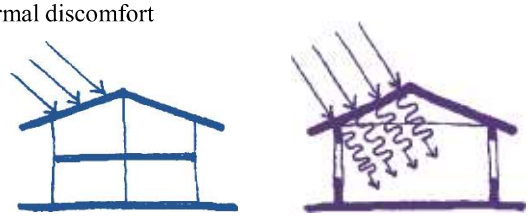


Fig 17 Building Materials

Spatial Layout

Spaces are not restricted to a particular activity development. On the contrary, spaces are used with flexibility for any desired activity. Privacy is not a concern.
Spaces are delimited and restricted for a particularactivity: Sleep in the bedroom, eat in the dining room, andentertain guest in the living room. Privacy is a strong concern.

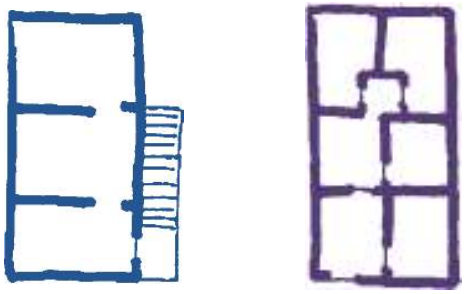


Fig 18 Spatial Layout

ANALYSIS FROM EXPERT ARCHITECTS FROM MY LITERATURE STUDY

The significance of public domain in fostering the sense of community is lost in the newdevelopment confining people to their individual homes.
The circle of confinement is only reducing more and more in the modern housing development.
The relationship between house and street is completely erased in the name of safety and security which had only led to more social irresponsibility and un participatory attitude of people.
The lack of interaction places should now be addressed as a social problem having discussed its impacts on the societal development and well beginners.
Built environment moulds the community. An interactive community will develop the ability to the ability to maintain and build on its own resources and the resiliency to prevent and/or address problems in the future

VIII RESULT

TAMILNADU VERNACULAR ARCHITECTURE

NAME OF SPACE	AREAS INCLUDED IN THE HOUSE	MATERIALS
MUGAPPU	Thinnai, Pattalai and main door	Columns of polished granite, satin wood, Burma teak wood & carvedand detailed main door
VALAVU	Spaces to be used by the jointfamily members.	Section has columns with high degree of detail and polish &Valavu has a timber roof
NADU VAASAL	This area comprises of roomsabutted by long colonnades and a courtyard.	Well-crafted columns in Burma teak or Satin wood. Timber sloping roof with clay tiles.
IRANDAN KATTU	Space reserved for women and children	Doors, windows and colonnades with minimum embellishment and carving.
MOONRAN KATTU	Cooking area and spaces where servants worked	simple unpolished granite columnsand stone implements used in cooking.

Table 1 Tamilnadu Vernacular space and materials

CASE STUDY MODERN BUILDING

- The position of courtyard or any open space decides the users and its pattern of use. There are no other derivatives of the courtyard that can replace the feel and porosity like that form itself can give although it satisfies some of the functional requirements of courtyard likemay be lighting.
- Major alterations to the courtyard can completely give a different sense of space and utility, not the one that can be achieved from proper courtyard form. By doing that change it will only give more sense of a room rather the feel of an open space.
- Courtyard is the “key element” that has established its vital role of importance in the society and in the field of architecture according to time.

PARAMETERS	TAMILNADU
COURTYARD	Double height ceiling
ROOFING	Concrete ceiling
STRUCTURE	Wall is brick, Roof support bywall and column
THINNAI (FRONT YARD)	They closed with the compound wall they used forroofed sit out
BUILDING MATERIALS	Brick, concrete, Rough texture walling, tile, marble

Table 2 Tamilnadu Modern architectural parameters

IX CONCLUSION

- In a typical Tamilnadu architecture the sloping roof, overhangs, wooden windows etc limits the light entering to the house. In order to increase light and ventilation they included courtyards inside each house, still the light entered wasn't sufficient. But when it comes to a modern Tamilnadu house they gave Semi permeable spaces such as patio and large expanses of the veranda from the dining room take advantage of tropical climate for natural lighting.
- Because a new trend has been introduced to Tamilnadu where these young upcoming architects are designing residences as an amalgam of traditional architecture and modern architecture together, which has all the features of vernacularism and at the same time they have all the properties of a modern building.
- This is a study where we analyze the vernacular elements of Tamilnadu Architecture – a staple and characteristic feature of the style, and its modern time adaptations.
- I am concluding this research with all elation that people of Tamilnadu has started to realize that their ancestors were not all wrong. For a better future we need to take references from our past. And now I can say that Tamilnadu architecture is going in a right direction for a better future.
- The inference obtained will be useful for the architects and planners to collaborate vernacular ideas to enhance the contemporary buildings with vernacular context.

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