IMPACT OF TRADITIONAL SPACE PLANNING ON THE SEMI-PUBLIC SPACES OF CONTEMPORARY SRI LANKAN HOUSES

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Abstract - "Tradition" is the energy of a society and the most valuable asset they have inherited from the past. Since a majority of client population with traditional roots are looking for houses with a traditional semblance, such houses are on high demand. As a result, the field of contemporary Sri Lankan architectural phenomena has addressed by various traditional elements and concepts. Socially and culturally sound semi-public domains such as verandas, living and dining areas are the prominent testimonials which attract clients' demand for designs with traditional qualities. There is a contentious debate as to whether contemporary domestic spaces which "appear" as designs with traditional underpinnings are genuine intellectual application of traditional spaces for the betterment of occupants, or just Imitative and Insensible representation of traditional architecture. The main objective of the research is to evaluate traditional impacts and derive basic planning guidelines illustrating how to incorporate traditional space planning principles for contemporary houses. The first part of the research deals with a study of literature and a field survey conducted among selected pre-colonial and colonial Sri Lankan houses to accumulate the required data for evaluation and design concepts with a special reference given to semi-public domains. The second part is an analytical study of the semi-public spaces in three selected contemporary domestic buildings designed by three Sri Lankan master architects. Final part is the qualitative and quantitative evaluation of the data and experiences gathered in the first two parts of the research. Plot size manipulation, spatial progression, visual axis, geometry of spaces, degree of enclosure, privacy and natural lighting were found as the key factors of space planning and defining spatial qualities of the traditional Sri Lankan houses. Design guidelines were developed based on above factors which help to design domestic semi-public spaces for the physical and psychological comfort of the users.

Keywords : Sri Lankan house, semi-public spaces, Traditional space planning

I. INTRODUCTION

'Tradition' is the energy of a society and the most valuable and important gift they have earned from the past. It may be either tangible or intangible. But that is the driving force and the navigator of a society. A tradition decides the pathway to future. As a highly community related activity, the design and construction of a house was also subjected to traditional influences of past decades. As a result traditional influences were used as a basic generator of architectural designs. There are several Sri Lankan architects, who have performed positively in creating delightful special experiences in domestic contexts by following traditional principles of creating various special expressions. Contradictory, there is another tendency of erotically interpreting the tradition and inserting it for the domestic designs. Within the contemporary architectural practice both types of practitioners and their products are available and this tendency is more likely to proceed for the future by modifying the tradition according to the society as well.

A. Justification And Objectives

Due to the high demand in the current society of Sri Lanka for the term "tradition", domestic buildings are

mushrooming under the label of "Traditional architecture". But it is questionable whether all of those creations are resulted by a genuine design effort with a better perception about traditional architecture and the design principles beneath it or followings,

• Imitative representation of traditional spaces
• Designers own thoughts which present as traditional
• Insensible and alienated implementations of traditional spaces or
• Afterthoughts.
• Therefore a proper study focused on the below mentioned points is needed to guide designer to accomplish their design goals by appreciating traditional Sri Lankan architecture.
• Extract governing forces and generators of traditional space planning methods in domestic buildings
• Identify selected contemporary domestic examples and analytically prove the traditional influences on identified spaces
• Derive basic space planning principles extracted from traditional examples , that can follow in present day designs

"The tradition was not static; it changed with the time and the changing needs of the society" [De Silva, 1990, p.08]

II. METHODOLOGY

A. The study consists in three parts

• Part 01: a study of Formation of spaces in Sri Lankan traditional house and a study of semi-public spaces in Sri Lankan traditional house:

• A literature survey was done to find the universally valid factors behind the concept of the domains in domestic buildings. Afterwards the study directed to explore the Formations of spaces in Sri Lankan traditional house under relevant factors.

• Part 02: analytical study of semi-public spaces in traditional Sri Lankan houses:

• In this section six (06) house types within three (02) main categories were taken as models to study the arrangement of the semi-public spaces in space planning.

Category 01-Sri Lankan Traditional rural houses:
Traditional houses of north central province, Kandyan period yeomen's house, Houses of Kandyan period feudal lords

Category 02-colonial influenced Sri Lankan houses:
Portuguese influenced traditional houses, Dutch influenced traditional houses, and British influenced traditional houses

• Part 03: Impact of the Semi-public Spaces of Contemporary Sri Lankan Houses on the Traditional Space Planning:

• Three cases studies were conducted to explore the space planning techniques with special reference to the semi-public domain.

Spatial parameter	Case study 01	Case study 02	Case study 03
Floor area	2700 ft2	3200 ft2	3800 ft2
Number of bed rooms	03	04	05
No of floors	02	02	01
Area of the site	2722.5ft2 (10 p)	6125sqft2 (22.5 p)	29948ft2 (110 p)
Year of completion	2004	2003	2008

Table 01: Details of case studies

Each case study is a unique contemporary Sri Lankan house designed by three different pioneer Sri Lankan architects

B. Method of data collection and Method of analysis

All necessary details for the study were taken by studying Details briefs of each building, Client overviews, Designer's vision, Architectural drawings and Real time spatial experience. The data was collected by observing each building, by analysing architectural drawings and by interviewing the Architect and the design team. Contemporary and traditional space planning was comparatively analysed graphically using floor plans, cross sections and real time observation of each building. Detailed briefs, construction details, details about the clients and architects vision were taken as supportive information for the analysis.

III. RESULTS & DISCUSSION

A. Major forces

The study found following universally valid two major forces that causing the evolution of spaces in the traditional Sri Lankan house.

- Physical forces
- Socio cultural forces

B. The domestic comfort

Universally people in different parts of the world struggled in space planning process to handle foresaid forces seeking for one important thing called "comfort".

"The need for sensory stimulation and satisfaction, and hence for visual and social complexity in the environment, seems contact of both man and animals". [Rapoport, 1969, p.79]

The comfort can be divided in to two components,

Physical comfort - good sensations experienced by the body

Psychological comfort - good sensations experienced by the mind

C. Generators of the domestic comfort

By examining Sri Lankan traditional domestic examples four (04) generators were identified which can generate the physical comfort and psychological comforts of the user. Four generators are given below and can act independently as well as interdependently in space planning process.

- **Security or protection**

From early childhood Security is a main requirement of a human being to avoid various dangers that can risk his life. The risks are considered as threats coming from natural environment or climate, humans and mystic sources. Therefore psychologically people expect higher degree of security from their domestic environment and it improves their comfort and so do the satisfaction.

- **Territoriality**

As one of the psychological attributes, the territoriality is an important criterion of creating one's own demarcation, especially among the human beings as one of the most territorial animal. Territoriality was demanded when man wanted to maintain his identity and privacy within the household. People tend to define visible and invisible boundaries to develop his own identity in his territory.

- **Privacy**

The nature itself has created "hidden spaces" for its living and non-living species. The secrets of nature have been embodied in the word called "privacy". Privacy in a house is not only related to oral or visual privacy. It spreads through a wide range of personal choices and heavily related to emotional relaxation. And privacy is also is one basic need to form the concept of domains

"The desire for privacy may also take forms related to the separation of domains" [Rapoport, 1969.p.66]

- **Identity and belonging**

The Need of identity and belonging is an essential factor of the human beings. Naturally they tend to acquire some kind of uniqueness within the main society and sub societies. Language, dress, behaviour pattern are some of the social factors, which determine the identity of a specific social group as well as of a person. The concept of "Home Sweet Home" has been a popular term around the world. Irrespective of age or social class, everybody has strong bonds with their homes representing the sense of belonging

D. Formation of the domains

The Four generators directly involves in the process of forming different domains in domestic space. Those domains are essentials   in space planning to create a comfortable homely environment. Domains formed by preceding generators as follows:

- **Public domain**

This is always the outside space of the building periphery. Anybody can enter in to this domain. (Ex. Public roads and surroundings, pathways in front of the house)

- **Semi-public domain**

The domain demarcates the social activities within the periphery of domestic environment. House holder's permission is expected for the activities take place under this area. Entering visitors, family gathering, are took place related to semi-public domains. (Ex. Front poach, verandas living areas, dining areas)

- **Private domain**

The space inside the domestic environment is arranged in such a way that they correspond to their degree of privacy

- **Hidden domain**

Space with very higher degree of privacy and with higher degree of attention for hygienic aspects (Ex. Toilets, Bathrooms)

- **Threshold space**

The space between two domains

E. Significance of the semi-public spaces for the traditional Sri Lankan house

Among the domain discussed above the semi-public domain has significantly modified during several eras from post-colonial periods to the present. In Sri Lankan traditional house planning the semi-public domain was important to place other domains successfully. Aesthetical appearance of the house, social relationship with the community and climatic response was also depended on the semi-public spaces. There for semi-public space was a key element formed by physical and sociocultural force under Sri Lankan context

"The addition of an external veranda on the front of the Sinhalese house, constructed with wooden columns or masonry piers, seems likely to be a fashion introduced under the external influence of either the Hindus or the Portuguese, probably the latter" [Sansoni, Ronald, Senanayake, 1998]

"Dutch houses were built to accommodate various officers of life in a colonial family…..

"….Often a wide verandah known as the "stoep" ran along the street frontage, linked to a main reception room, separated from more private quarters by a first inner court yard…"[Robson, 2004. P.37]

F. Parts of a semi-public space

Semi-public spaces of Sri Lankan traditional house were a combination of two main parts according to their orientation
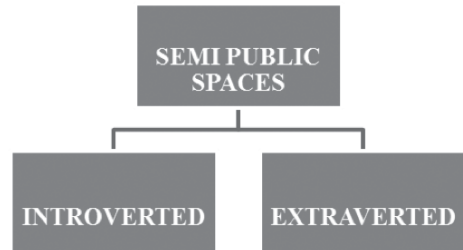

Table .02 Basic classifications of semi-public spaces

- **Extraverted part of semi-public spaces**

Outer space or most open space of a house. "Pila" or the verandah was the main dominating built form in many of traditional examples. This space was more open out to the natural environment with lesser degree of privacy and was the welcome space for visitors. In some cases it functioned as a security space or a threshold space between public and semi-public domains.

- **Introverted part of semi-public spaces**

Inner or the more enclosed part of semi-public space located within the inner proximity of the house. In most of the traditional house this was the centre or the main part and was functioned as a family space as well as the visitor's space. With the development of the semi-public space, courtyard was a dominating element in traditional domestic buildings. Some parts of this space functioned as threshold spaces between semi public and private domains.

G.Common features of space planning in traditional Sri Lankan houses

By examining the six traditional Sri Lankan houses from earliest tank fed village houses to British influenced bungalows some common planning techniques used to arrange semi-public spaces can be found. Such features can be briefly listed out as follows:

- Main and centralized space positioned with number of strong spatial links to other spaces

- Space has located on the centre axis of the house and symmetrical in form
- Space has designed by simple planning and well defined by solids, open spaces and edges.
- Threshold spaces introduced prior to the semi-public areas
- Entrance to the introverted part of semi-public space has located on the centre axis of the building or on a visual axis going across the open spaces.
- semi-public space became the largest volume found through the spatial progression
- Has maintained more closer spatial relationship with natural environment
- Within the domain, less privacy maintained between family members and visitors
- Colonnaded verandas and courtyards were the prominent built forms which was related to semi-public domains
- Diffuse lighting is promoted than direct sun illumination
- Courtyard and open verandas were the main inlets of light and ventilation

H. Case studies

Above discussed features can be seen in the contemporary domestic semi-public spaces in different ways.in selected three cases few space planning techniques has been used incorporate traditional spatial qualities in to the design. They can be discussed as follows:

- **Spatial flow and linkages**

According to spatial flaw and linkages there can be several similarities found between the spaces of traditional and contemporary semi-public spaces. Flow chart of every house has maintained a threshold space prior to enter the semi-public spaces. The Threshold spaces can be located within the built form or out of the building. But in all case studies always built forms of threshold spaces contain lower volume than the immediate semi-public space. Hence spatial flaw always directed from lower to higher volumes. A similar arrangement can be seen traditional houses as well. Most designs consist with a threshold space with lower volume comparatively prior to enter the immediate semi-public space.

- **Visual and physical linkages**

Case study one contains one main space for all semi-public activities including living dining and specially cooking. As a result entire space functions as a single volume by creating generating strong visual and physical linkages. This situation can be seen in Kandyan period yeoman's houses which one internal space facilitating all the activities including visitors meeting dining and cooking. Case study two and three has series of different spaces for different activities such as Living, Dining and Family gathering. All of them have physically linked by linear verandas. But direct visual links between each other have consciously avoided for creating of difference spatial experience through different spaces. Similar arrangement have used in most of colonial influenced examples with verandas , living rooms and dining rooms separated by walls to block the direct vision to each other. Link between natural environments is stronger in all three case studies which is a common situation in traditional designs.

- **Proportion and scale**

Due to impact of rituals and the technological limitations spaces of traditional houses followed simple geometry. Especially living spaces in traditional houses had the highest position with largest scale according to the hierarchical order. Spaces of All the case studies are similar as the traditional houses with simple geometrical in shape and uniform in height. Verandah are always linear, rectangular in shape and their width is always higher than the depth. But other semi-public spaces are rectangular in shape with a higher depth. Scale wise semi-public spaces always higher in size and volume than other spaces.

- **Managing the degree of privacy**

Within the domestic enclosure privacy was not a greater concern in basic Sri Lankan traditional houses. There weren't barrios between domestic activities and visitors. As discussed in presiding section "visual and physical linkages" all activities took place in a single volume. In case study one the internal spatial arrangement of main semi-public space is quite related to this traditional concept. All the day to day activities including family gathering, dining and cooking took place within a single volume. In case study two and three have different level of privacy within semi-public spaces because both of them containing more than one such space with linear linkages. But in case study 02 all the living, dining and family areas have exposed in to the central open space by maintaining the less privacy concept of traditional rural houses.

- **Use elements of the built forms**

Colonnaded verandah spaces with sloping roofs were the prominent elements of extraverted semi-public spaces and open courtyard spaces surrounded by internal verandas were the prominent elements of introverted semi-public spaces in traditional Sri Lankan house. Similarly, in case study two and three consisted with colonnaded verandas as the prominent built form of extraverted semi-public spaces. Case study one which only consisted with introverted semi-public spaces contains two internal courtyards. Even though they are not located in the centre of the spaces they full fill the functional and spatial requirements that traditional examples did. All the natural ventilation and diffuse day lighting is assured by this two courtyard spaces for surroundings which function similar to the internal verandas of traditional houses. Considering about court yards case study two consist with an interesting large central courtyard space such as the courtyard space of a Dutch street house.

IV. CONCLUSION

A. Important factors to be considered in space planning

By examining contemporary houses comparatively with traditional houses, following seven (07) factors can be identified that are important in planning semi-public spaces:

- Plot size
- Spatial progression
- Visual axis
- Geometry of space
- Degree of enclosure
- Privacy
- Natural lighting

B. Proposed Planning techniques
B.I. Plot size

- **Relatively large plot areas contain about 20 perches or more:**

The design should give more priority for extraverted semi-public spaces including verandas and podiums. In such a land introverted open spaces such as courtyards are not necessary to be included. Again the linear spatial arrangement is more suitable for such lands to provide different spatial experiences through the progression (Fig.01)

Intermediate plot sizes contain about 10 to 20 perches: Both introverted and extraverted semi-public spaces are suitable. Especially relatively large central courtyard spaces with semi-public activities allocated around are infective for such a lands (Fig.02)

- **Small plots contain less than 10 perches:**

House has to locate by maximizing the rear space .more priority should be given into introverted semi-public spaces. One or more small scale courtyard spaces are suitable. But centre courtyards are avoidable due to the compactness of available space. Therefore corner court yards are more suitable (Fig.03)
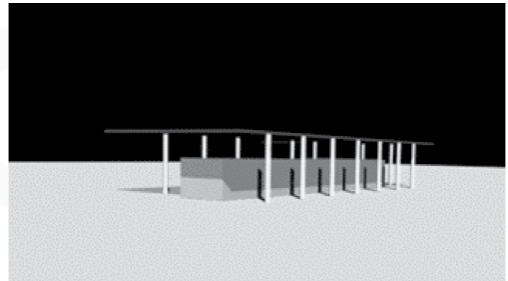

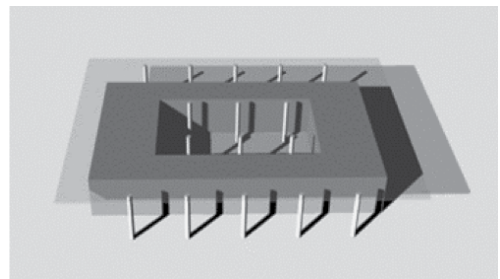*Fig.01. External semi-public spaces suits for larger plots*

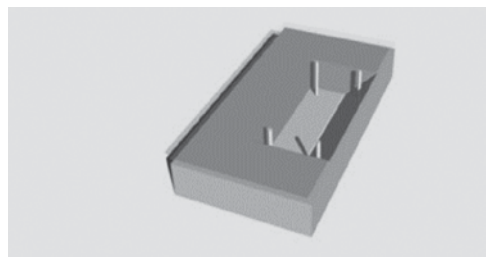*Fig.02. External and internal semi-public spaces suits for intermediate plots*

Fig.03. Internal semi-public space with a courtyard for small plots

B.II Visual axis

Centre axis of a semi-public space should run across an open space or a natural element such as tree or water body by visually connecting the two areas. Entrance to the semi-public space is also better to follow the same axis (Fig.04)

B.III Spatial progression

In terms of spatial progression threshold spaces and volume of the spaces is most important. The introduction of threshold space prior to a semi-public space is important. Always the volume of threshold space should be less than the immediate semi-public space. Weather there are several semi-public spaces some kind of difference in volumes of each space should feel to the observer in the progression (Fig.05)

B.IV Geometry of spaces

Simple geometry is the most suitable for spaces. Odd shapes are better to avoid as much as possible (Fig.06)
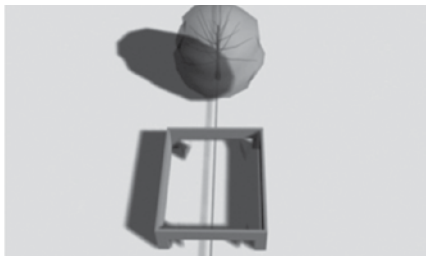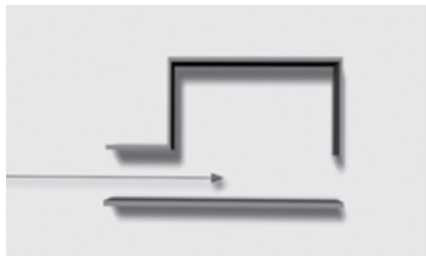

Fig.04. Orientation of visual axis

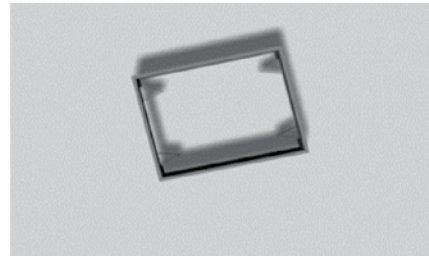*Fig.05. Spatial progression*

Through different volumes

Fig.06. Simple geometrical space

B.IV Degree of enclosure

Semi-public spaces have to open to the environment as much as possible. Designing of highly enclosed spaces should be avoided

B.V Privacy

In terms of privacy the private areas have to visually separate by semi-public areas. Within one semi-public space or between two semi-public spaces privacy should be less. Then the different territories within single enclosure should be demarcated by furniture arrangements or by finishes.

B.VI Natural lighting

Direct sunlight should be avoided by shading devices such as verandas, extended eaves and diffuse light to be promoted using spaces such as courtyards

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