

Cultural Influences on the Architecture of Courtyard Houses: Insights from Courtyard Houses in Kerala, India.

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Abstract

Courtyards in vernacular architecture play a significant role in shaping the living environment. Their layouts and designs are influenced by historical, cultural, and climatic factors. They are essential for thermal comfort, providing a buffer against outdoor climate fluctuations, and promoting natural ventilation. The spatial organisation of courtyards reflects the local lifestyle, with a focus on regional adaptability and comfort.

This research examines the vernacular courtyard house types of Kerala, a state in India. It employs a literature review and architectural documentation of vernacular prototypes. The literature review identified the vernacular courtyard house types specific to Kerala. The cultural attributes of the types were through the interviews with residents. Three vernacular courtyard house types of the region were selected, and architectural documentation was conducted for the selected samples. Based on culture and context, differences in the layout and characteristics of the spaces were studied.

This research re-affirms the role of culture in shaping architecture. It contributes to a deeper understanding of the intricate interplay between culture and architecture, using the case of courtyard houses of Kerala.

Keywords: Courtyard houses, Vernacular architecture, Culture, Traditional architecture, Kerala architecture

Introduction

A courtyard is an architectural element that has evolved as a climate-responsive and culturally active space. A courtyard is an element that ensures proper natural ventilation and daylight within a built form. According to Koenigsberger et al. (2019), it can be used as a passive design strategy for heating and cooling a region. It is defined as an unbuilt space or an uncovered area wholly or partly surrounded by walls or buildings.

The houses that have adopted the courtyard as an element are known as courtyard houses. Even from the Indus Valley civilization, courtyard houses were predominant in various parts of the world. The type, usage, and size of the courtyard differed based on the culture of the user and the climate of the region.

Even in India, there are many types of courtyard houses. The diversity of culture, climate, and geography across India has resulted in different vernacular courtyard house types. According to Pandya (2022), North Indian Havelis to South Indian Chettinad houses represent Indian courtyard house types. These types may have similarities in their structure or form, but space and spatial quality differ with the culture of use. Pandya says that due to the humid climate and abundant vegetation of Kerala, the climatic value of the courtyard within the built form is reduced, but it remains a vital element of the residence because of the symbolic, social, and religious needs of the communities of Kerala (Pandya, 2022). The courtyard houses of Kerala are commonly called '*nalukett*' houses. Courtyard house types specific to the three communities differ. In this context, this study examines courtyard house types specific to Kerala, a state of India in a warm-humid region. Its aim is to provide insights into the relationship between architecture and culture as manifested through courtyards. Its objectives are:

1. To identify the types of courtyards in Kerala, India.
2. To reveal the relationship between types of courtyards and the culture of the inhabitants and the communities.
3. To establish the relationship between architecture and culture.

Literature Review

Architecture reflects culture according to Rapoport (1969), prioritizing cultural expressions over materials. House forms are shaped by sociocultural factors, emphasising community and meaning in design. Rapoport (1969) argued that house forms are shaped by cultural values, norms, and expectations, which are more significant than climatic or technological factors.

Based on Rapoport's theoretical framework, several studies and reviews have been conducted globally. According to Turan (1975), Rapoport argues that house forms are shaped by sociocultural forces more than environmental forces, with technology and materials as modifying factors (Mete Turan, 1975). NGO Kein interprets Vietnamese housing with respect to Rapoport's theory and tries to establish cultural expression over the materials. Wisdianti (2021) discusses the relationship between culture, gender, and spatial arrangement in traditional houses, emphasising how cultural traditions influence the forms and layouts of living spaces.

Similarly, Nas and Prins (1988) discuss the concept of housing in relation to culture, emphasising the importance of material, sociocultural, and economic aspects in understanding the house. The authors compare different cultural interpretations of houses and their functions across societies. They discuss how the concept of the house varies in different contexts, such as in African villages where a household may consist of multiple huts, versus a single building housing multiple households in other cultures.

Indeed, these research clearly demonstrate that there is a significant relationship between architecture and culture and more specifically between house forms and culture.

Research Methodology

Figure 1 illustrates the research methodology employed in this study. The research began with a literature review to identify the vernacular courtyard house types of Kerala that are specific to different communities. Basic cultural practices and spatial requirements were also examined in the literature review. One sample of each type in a similar context and location was identified and architectural documentation was conducted. Cultural attributes were verified through unstructured interviews with residents during the field survey. An analysis was conducted based on the data available in the literature and observations from the documentation.

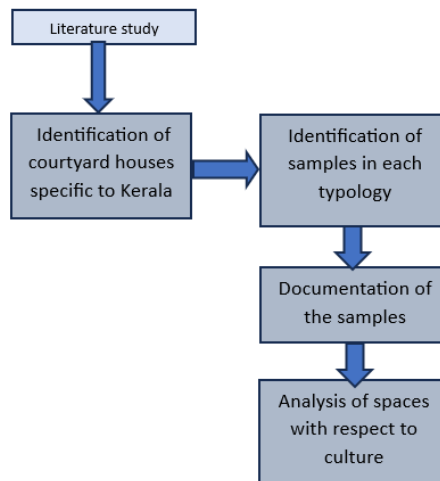


Fig.1: Methodology of research
Source: Author

An Introduction to Vernacular Courtyard Houses of Kerala

Kerala, a state situated at the southern end of India, is blessed with monsoons. The vernacular architecture of Kerala has evolved to sustain high humidity and strong rain in the region. Widiastuti's research recognises that Kerala has a plethora of courtyard house variations, with several deviating from the strict principles of Vaastu, thereby classifying them as local variations of the *nalukett* style. The author categorizes the courtyard houses in Kerala into four distinct types, including the *mana/illam*, *Nayar tharavad*, Syrian Christian house, and Malika houses of Ponnani and Calicut, which are unique to the region. (Widiastuti, 2013). Thampuran (2001) expanded this list by introducing agraaharams as a specific category within the realm of courtyard houses. Linas and Chithra identifies the Vernacular courtyard house typologies of Kerala by identifying and validating characteristics of vernacular architecture using a literature review (Linas and Chithra, 2024). A primary list was extracted from the relevant literature sources and supplemented by discussions with experts. The preliminary list is as follows (Table 1). Agraaharams are excluded from the study as they are row houses. *Mana/illam*, *Nayar tharavad* and *Malika* houses of Ponnani were selected as the courtyard house typologies for the study.

Table 1: Identified courtyard house typologies
Source: Author

Courtyard house typology	Community
<i>Mana/illam</i>	Namoothiri Brahmins of Kerala
<i>Nayar Tharavad</i> (Chathussala typology)	Hindu Nayar community
<i>Malika</i> houses of Ponnani	Mappila Muslims of Ponnani
<i>Agraharams</i>	<i>Iyer community</i>

Mana/illam

Namboothiri Brahmins are known for their expertise in Sanskrit, Ayurveda, and Vedic studies. They are also wealthy landowners and are considered to be the most superior caste in Kerala's Hindu hierarchy. The homesteads of Kerala Namboothiri Brahmins are typically called '*illam*' in northern Kerala and '*mana*' in central and southern parts of Kerala. The community is rooted in sixty-four Namboothiri gramams from across Kerala. Hence, most existing *mana/illams* are spatially distributed throughout Kerala. They followed a patrilineal inheritance system, and the eldest son became the owner of the *mana/illam* as he had the right to marry

within the community. Namboothiri Brahmin's life is characterized by notions of purity and impurity in relation to life stages and rites of passage.

The primary aim of these rituals is to uphold their status and reputation within the caste hierarchy, while also safeguarding their family from impurities that may endanger the household both from within and without (Schildt 2012). They are considered the most superior class among the Kerala Hindus, and their houses contain a permanent domestic fire for rites of passage (Shodhakriya). Figure 2 shows a plan for a *nalukett* with a single courtyard. The houses with a second courtyard are termed as '*ettukett*'. The spaces meant for females are situated next to the second courtyard (Desai, 2018). The second courtyard was more rectangular and narrower than the main courtyard. Table 2 shows the typical spaces and activities or cultural significance related to the space based on Henry Schildt's study (Schildt,2012)

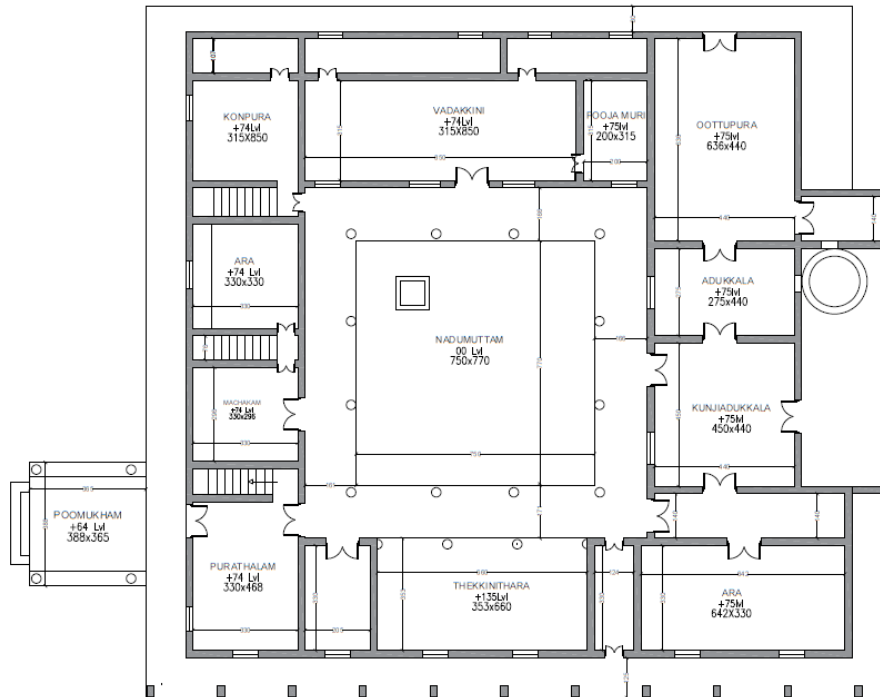


Fig 2: Plan of Kakkatt mana

Table 2: Spaces and activities in mana/illam

Space Name	Sala/wing	Activity	Ritual
<i>Poomukham</i>		Reception of guests/male entry to the house	
<i>Purathalam</i>	East/west	Living space for males	Groom entry during the wedding <i>Nandimukha</i> during wedding
<i>thekkini</i>	South	Study and leisure activities	<i>Kalamezhuth patt</i> Dining for males during festivals
<i>nadumuttam</i>		Courtyard	Lightening of the lamp in the evening The bride plants jasmine during the wedding <i>Guruthi</i> in <i>tulam</i> (<i>Malayalam month</i>) <i>pattathanam</i> <i>Trikala pooja</i> in <i>karkitakam</i> <i>Upanayanam</i>

			wedding
<i>pathayam</i>	West	Granary or storage of utensils	Lights lamp in front
<i>Pooja muri</i>	West/East	prayer	Daily rites of worship
<i>vadakkini</i>	North	For conducting homams	Ganapathi homam Name-giving ceremony of babies <i>Annaprasana</i> Fire offering as part of the first haircut <i>Upanayanam</i> Bride entry during the wedding <i>Tali</i> tying ceremony
<i>Vadakke muri</i>	North-east corner	Used by ladies during menstruation and child labour	
<i>kizhakkini</i>	East	dining	<i>Niskramana</i> ceremony <i>Ayiniyunu</i> During the wedding ceremony
<i>Adukkala</i>	East	Kitchen	<i>Ayiniyunu</i> During the wedding ceremony
<i>Ara</i>	West	bedroom	

Nayar Tharavad

The traditional residential type of the Hindu Nayar community of Kerala is termed '*nayar tharavad*'. Nayar communities follow the matrilineal system of inheritance and are chieftains to kings, landlords, warriors, and ministers by profession. The Nayar community is one of the predominant matrilineal Hindu communities in Kerala (Abraham, 2017). Females play an important role in kinship because of their inheritance system. The eldest female in the family rules the house. Females have the freedom to use every space in the house, except ritualistic spaces (Moore, 1989). The layout of a Nayar tharavad is similar to that of a *mana/illam*, but the difference is that the *nayar tharavad* contained more habitable rooms because of the large household size.

Moore (1989) states that the central courtyard of the house was preserved as a sacred place for festivals and other temporary worship, jasmine platforms, or some particular shrines. The nomenclature of the blocks in Nayar Tharavad is similar to that of *mana/illam*. Each block is named after the cardinal direction to which it orients, such as '*vadakkini*,' '*thekkini*,' '*padinjati*,' and '*kizhakkini*.' The ordinary houses were small and contained smaller courtyards. The spaces were oriented toward the courtyard or the passage next to it. However, wealthy families have larger dwellings that contain larger courtyards or number of courtyards.

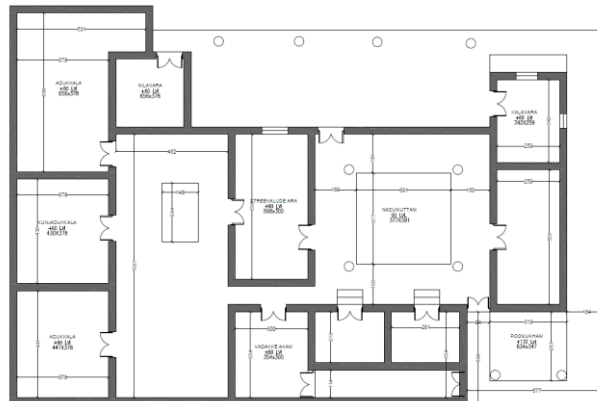


Fig 3: Plan of a Nayar Tharavad at Kannur

The houses followed an East or West orientation with respect to regional influence. Most bedrooms were located on the upper floors rather than on the ground floor. Table 2 shows the spaces, activities, and rituals of each space, and Figure 3 shows the plan of the *Nayar Tharavad* at Kannur.

Table 3: Spaces, Activity and rituals related to *Nayar Tharavad*

Space Name	Sala/wing	Activity	Ritual
<i>Poomukham</i>	South-East	Reception of guests/male entry to the house	
<i>Purathalam</i>	East/west	Living space for males	
<i>nadumuttam</i>	South	Courtyard	Lightening of the lamp in the evening Bride plants jasmine during the wedding wedding
<i>pathayam</i>	Middle of western wing	Granary or storage of utensils	Lights lamp in front. During the temple festivals
<i>Pooja muri</i>	West/east	prayer	Daily rites of worship
<i>vadakkini</i>	North	Dining area	
<i>Vadakke muri</i>	North-east corner	Used by ladies during menstruation and child labour	
<i>Adukkala</i>	East	Kitchen	
<i>Ara</i>	West	bedroom	

Malika Houses of Ponnani

Ponnani is a trade and knowledge centre situated on the Malabar coast of Kerala. Ponnani was a famous port town because of its influential location between Bharatapuzha and the Arabian Sea. Ponnani Muslims followed the matrilineal system of inheritance, which was purposefully built to accommodate extended families, with an emphasis on ensuring privacy for women. The Malika houses have introverted planning ensuring the safety to the females of the house. The houses were situated next to small streets with large gateways and interior courts. This design is noteworthy for the successful separation of private and public spaces in homes. Furthermore, the Mappila communities of Malabar have proudly preserved the matrilineal system as a cultural tradition of their Hindu origins (Subramanian, 2021). These spaces have a clear division between male and female spaces. The verandah and inner verandah spaces are meant for the males of the family. Ponnani Malika houses may have single or multiple number of courtyards.

Figure 4 shows the plan of the Ponnani Malika house and the courtyards within it. The courtyard within a Ponnani Malika house can be divided into three types. The first type is a public court situated between the entry of the house and verandah (Fathima, 2018). The public court is meant for males of the house. The second type of courtyard is situated in the '*kottil*' common room of the house. The courtyard acts as a light and ventilation duct in the room. The third court is the courtyards situated in the '*ara*' of the house. Each *ara* is similar to an apartment as it contains bed space, toilets, and a private court. Table 3 shows the spaces and activities of the Ponnani Malika houses.

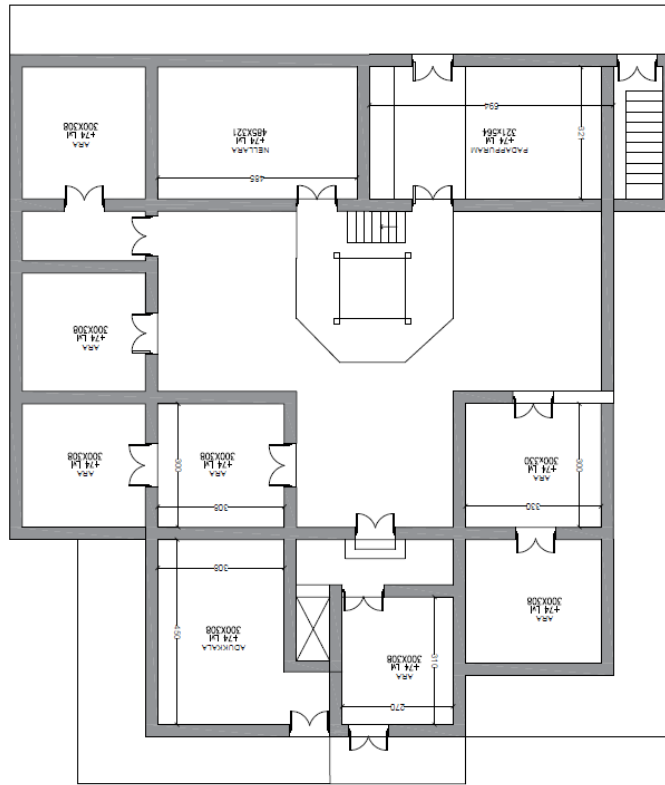


Fig 4: Plan of Bareesoudh, Ponnani

Table 4- Spaces, Activities and rituals related to *Malika houses of Ponnai*

Space	Activity
<i>Padamuttam</i>	
<i>Padakolaya</i>	Sit-out space, for receiving the guest
<i>Padappuram</i>	For conducting Moueed, For serving food during functions
<i>Kottil</i>	As a common room, Dining space
<i>Ara</i>	Bed room
<i>mandokam</i>	Utility space near Ara
<i>Maniyara</i>	Rooms for newly wedded couples
<i>Adukkala</i>	Kitchen
<i>Pathayam</i>	Storage space, granary

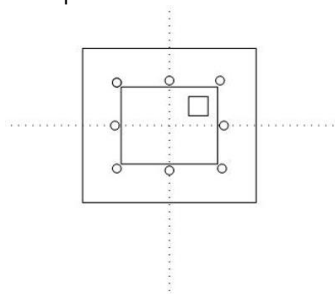
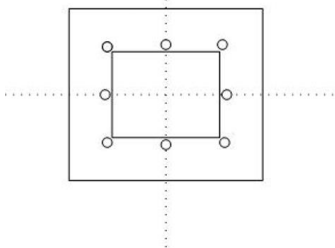
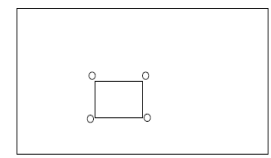
Discussion

Culture and architecture are closely linked, with architecture reflecting and being influenced by the culture of society (Kamali, 2014; Shen, 2008). Socio-economic, cultural, and traditional aspects impact the requirements and preferences of house owners, leading to the evolution and transformation of residential designs. The architecture of a society reflects its day-to-day activities, lifestyles, rituals, and values, making it a tangible representation of intangible socio-cultural features. Cultural factors dictate the creation of architecture, and once constructed, architecture starts to modify the lifestyles of its inhabitants. Sociocultural factors also influence the spatial organization, form, and function of residential spaces.

The selected courtyard house types represent three communities with different cultures. Even though the spatial layout of the houses is around the major element ‘courtyard,’ we can see that the way they use the space is different. The form and materials used may be similar,

but space, activity, and space quality remain unchanged. Table 5 shows a comparative analysis of courtyards of each typology.

Table 5: Comparative analysis of courtyards of each type

Courtyard house typology	Lineage	size		Activity
<i>Mana/illam</i>	Patrilineal	750x770	The primary courtyard is nearly square in shape 	Lightening of the lamp in the evening Bride plants jasmine during the wedding <i>Guruthi</i> in <i>tulam</i> (Malayalam month) <i>pattathanam</i> <i>Trikala</i> pooja in <i>karkitakam</i> <i>Upanayanam</i> wedding
Nayar Tharavad	Matrilineal	377x391		As a common space Lights lamp during the evening Active during festivals
Malika houses of Ponnani	Matrilineal			As a lighting duct As a private space

The courtyard of *mana/illam* is observed to be used more as a ritualistic and sacred space. During every stage of the *shodhakriya*, the courtyard has a role. The space also acts as a male-dominant space and a transition space to the house. The courtyard contains a jasmine platform, and deities and stone lanterns are also found in some houses. The main courtyard of a *mana/illam* acts as a center of all the ritualistic spaces. '*vadake kett*' or the second courtyard in a *mana/illam* can be called a courtyard meant for the females of the house. The kitchen, '*vadake muri*,' and other rooms meant for females were situated around this second courtyard. Even in the *nayar tharavad*, the second courtyard follows the same pattern. Due to the matrilineal lineage of Nayar Tharavad, females have no restriction in the primary courtyard. The courtyards in the *Nayar Tharavad* do not contain a Jasmine platform or lantern. The courtyard size was smaller than that of *mana/illam*. The courtyard in *Nayar Tharavad* can be said to be more active as an interaction space of a joint family. The courtyard is active as a ritual space during festivals and functions. But in the case of Malika houses of Ponnani, the main courtyard is used as a lighting duct for a larger room. The courtyard in the '*kottil*' is too small in size compared to courtyards in *mana/illam* or *Nayar Tharavad*. The second type of courtyard in Malika houses acts as a space for males and visitors.

Moreover, the courtyard is used during marriage and functions within the family. The courtyard in the malika houses of Ponnani can be termed as an interactive space which holds

unity and ensures privacy within the individual households. The figure shows the pattern and character of each type of courtyard in the selected typologies.

Conclusion

The research discussed different contexts of the same architectural element ‘courtyard’. This study shows that even in the same geographical or site conditions, culture plays an important role in the formulation of the space or the way it is used. The culture of society includes customs, beliefs, values, rituals, and conventions. The way the user perceives space changes based on the cultural practices of the user.

This research shows multi-dimensionality within the design of courtyard spaces. The courtyard is one of the evolved solutions to the warm humid climate of Kerala. However, the manner in which the elements have evolved for different types is different. Following conclusions are made.

1. The courtyard for the Namboothiri community is more ritualistic, and they consider the space sacred. The size of the courtyard is comparatively larger in *mana/illam* than in other types.
2. The courtyard of Nayar Tharavad acts as a common space for the joint family as well as a ritual space. The size of the courtyard is smaller than that of *the mana/illam*. While looking into the Malika houses of Ponnani, the courtyard in the space kottil is found to be small and acts as a light and ventilation duct. However, the courtyard inside the *ara* or front yard is large and functionally important. The courtyard acts as a leisure space as well as an interaction space in the case of Ponnani’s Malika houses. Ponnani Muslims’ matrilineal joint family culture demands more private space for women. Even in the size of courtyards, we can see that the courtyards meant for interaction are found to be larger courtyards. As Nayar tharavads and Malika houses follow matrilineal system of inheritance, major users of the main courtyard are females. But in the case of *mana/illam*, we can see that females have restrictions in the usage of main courtyard.
3. The influence of culture and social requirements can be seen in the design of courtyards. Architecture embodies the intangible concept of cultural identity, representing the shared aspirations and collective consciousness of a community throughout time.

Finally, the exploration of culture and architecture unveils a rich tapestry of human expression, creativity, and adaptability. It reinforces the idea that buildings are not merely useful structures but integral components of the cultural continuum, embodying the values and aspirations of societies across time and space.

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