Exploring Architectural Design of *Istana* Siak Sri Indrapura: The wisdom and environmental knowledges

Boby Samra$^1$ & Imbardi$^2$

$^1$Universitas Lancang Kuning, Pekanbaru, 28265, Indonesia  
Email: boby@unilak.ac.id,  
$^2$Universitas Lancang Kuning, Pekanbaru, 28265, Indonesia  
Email: Imbardi@unilak.ac.id

**Abstract:** The kingdom of Siak is the greatest heritage of Islam Malay Kingdom which leaves a study kingdom palace in Siak Sri Indrapura. The flourish of Siak Sri Indrapura is onward since after the last sultan of Siak declared his kingdom to have joined the Republic of Indonesia in 1946. The fast growth rate, such as the growth of population stipulates the building needs have become the major concern. Therefore, from time to time, the Malay buildings lose their identity and characteristics on moving into modern masonry buildings. The residential neighborhood is also changed by the existence of new culture and behavior of their economic status. The present study is conducted by doing field observation using interview, documentations and qualitative discussions in gathering the data. The expected result of the present study is to find out the meaning of the local wisdom of Malay traditional house architecture in the Kingdom of Siak Sri Indrapura palace as an entity of Malay architecture.

**Keywords:** Houses architecture, palace kingdom, traditional.

1. **Introduction**

The regency of Siak Sri Indrapura was the administrative centre of Siak Kingdom had a great maritime authority in Melacca straits. The kindom was founded in 1723-1746 by Raja Kecik Sultan Abdul Jalil Rakhmat Syah. He succeeded in developing the kingdom. The last sultan of Siak was Sultan Syarif Kasim I, who was in throne from 1915 to 1945. He declared the allegiance to the Government of the Republic of Indonesia. Not only that, the Sultan also handed over his property for the struggle of independence of the Republic of Indonesia.

The Malay language was widely used by residents or local people with the dialect of Malay spoken in Riau mainland. Most of the former territory of Siak kingdom is located in the flow of Siak River which covers the inland of Sumatera Island (known as Pekanbaru). The Melayu people make a living along the length of the river or along the shoreline of Malacca strait. They make a living as fishermen and farmers. The population and environment growth affect the development of contemporary architecture of buildings which finally begin to replace the architecture of Malay traditional house. But it is different for villagers of Lalang who still keep the respectfulness of traditional buildings as their cultural symbols in life.
For the Malay culture, house is a reflection of the glory and pride as a family responsibility, caters to the widely living needs, and it has an addition system which allows the house to be extended to meet the growing needs of each family. A built environment which has a touch of architecture of Malay house is believed as the symbols of beliefs, social, personality, and values (Arya Ronald, 2005). Malay culture injects the symbols and philosophies into every part of the building, ranging from stairs, poles, spaces and roof tops. The art of Malay house starts from the main building, and then other spaces are added. The function and its form cannot be exceeded from the main building of the house which reflects the philosophies of "the house has its owner, the village has its leader, and the land has its king" or a saying says "the chicken has its mother, lemongrass has its foliage, the net has its bud, the bound has its knot [1]. The interior of Malay house is partitioned to create variety and social function rooms which share the meanings and values.

2. Methods

Qualitative method was used to collect the data by measuring, identifying, and physical checking on the effect of the research object in formulating the research problem. The subjects’ opinions were recorded using interview to gather the data of past experiences of the subjects. The steps in doing the observation are explained (1) Re-measuring and drawing the objects in sketch and photos fitted authentically.(2) Interviewing the public figures to get the information of history and identity of the objects. (3) Collecting the three dimensions of documentation.

3. Results and Discussion

3.1 Spatial Layout of Malay Traditional House and the Values

Spatial interior of Malay traditional house is extremely well designed for the multifunctional use of spaces such as verandah, living room, courtyard and kitchen. Its design is also flexible as it caters to the widely different needs of the users and it has an addition system which allows the house to be extended to meet the growing needs of each family. The Malay people who lives in the eastern coastal of Sumatera island have tendency to adapt religious values and norms in their daily life, i.e. Islamic values used as the filter. The layout plan and house design should follow the Islamic principles, so it reflects the Malay personal dignity. The values adapted by the society are the tradition of life, whereas Islam is the pathway to Accomplish the tradition values without breaking the norms. There are 3 nodes interrelated in Malay socio-culture life: (1) tradition, (2) customs, and (3) belief which contribute to socio-culture life. When conflict happens among the three interrelated parts, public figures’ roles is taken to mediate the practice and as the decision makers in society’ spiritual life. Figure 1 shows the spatial hierarchy of Malay traditional houses reflects the interrelated of functional requirements and spatial elements, such as the verandah and living room are additional, family room is the main room, courtyard and kitchen are at the back.
The spatial layout and construction reflects the concepts of religion, tradition, and cultural practices of the Malays. Maintenance of customs of privacy such as how ones should behave and practice in social life, such as the way how to walk, and respect guests are facilitated by functioning the spatial organization of Malay house. This is the way injected the values, customs, and manners of Malay in functioning the design of rooms especially to respect guests through the Malay dwelling layout plan. The terrace is functioned for social interactions of younger’s and kids, family intimacy for sparing time, while parents can observe children. Otherwise, the terrace is functioned by the adults to relaxing and observing kids playing in yard.

Basically, there are no rooms in the Malay traditional dwelling, the main room is functioned as child’s place to sleep and separated by curtains, while parents is on permanent bed taking a space from the main room. The more spouses ask the more room dividers for the reason of privacy of married daughters.

3.2 Airing and Ventilation of Malay traditional house.

The architecture of Malay traditional house is a type of vernacular house in which it may be adapted or developed over time as the needs and circumstances change of tropical in Sumatra’s east coast. The building is designed with particular regard to local tropical, so airings are penetrated into wall to control the fresh air circulation. The concept is best suited for hot and humid tropical climates. It is clearly shown in Figure 2.

![Figure 2: Openings on wall (a) kitchen wall (b) window of main house, (c) front window, (d) wall of washing dishes room, (e) wall of singap and roof.](image)

The penetration is also found in kitchen wall and floor to maximize the fresh air supply and removing cooking pollution concentration. It is a concept of traditional house to promote design concept of housing that reflect the demand based on the current needs of users, materials availability, climate, technology, and environment. The air circulation is the stack ventilation in which the openings located on opposite sides of a space.
3.3 Ornaments of traditional house

The characteristics of Malay traditional house are can be identified from the floor to the roof which reflects the certain meanings and values in facilitating the needs of the part of house. A symbol shows a creative concept in certain form and art, has uniqueness and function, save, simple, accommodate the needs of each people, and has relationship with the objects in the environment. The ladder has a stone pad with two sides of left and right handles, and the wooden stairs. See figure 3. Other symbols can be seen in window grids which are more clinging; the fence of terrace is functioned as the pole of house. The functions are not merely used as the characteristics only, but also as the art for traditional house.

![Figure 3: Form and symbol (a) stair, (b) window fence, (c) roof motif lebah bergayut, (d) Fence, (e) peg of home pole.](image)

3.4 The aesthetic values of Malay traditional house

The aesthetical values of Malay traditional house are closely related with the functions of room interior and external design to support their daily life activities. The concept of living in harmony with nature is highly appreciated among others and maintaining the living environment as well the places on where they live and earn for living such as in sea, river, and field. Each has specific characteristics of each architecture ornaments. The façade of Malay traditional house has a feature of environmentally friendly as shown in figure 5. From the figure, it can be seen that the environment is ensured to have no damaged on physical of environmental materials by using old and hardwood trees such as punak and meranti.
Figure 4: Traditional of Malay house

The roofs of the Malay vernacular house as the object of the present study is structured in a five pyramid-style roof, *perabung* limas roof (hipped), cover of limas roof, *lipat kajang* limas roof, and double limas, all are the roof shapes of houses in Malay mainland.

Figure 5: The roof shapes.

The roof shapes differentiate the main and the additional houses as supplementary space on the sides of the main house. In roof construction terms, it is done by raising *rumbia* (sago palm) or zinc roofing, adding decorative works of art usually used to add. In the main house, limas and limas *perabung* roofs are used. Whereas in the terrace, limas cover roof is used which is embedded with the living room. The frame uses the unique structure of truss as shown in figure 6. The wooden ceiling frame is used in the main house, bark ceiling in the middle zone of the house, and thatched roof in the kitchen without ceiling to allow polluted air is easily out and get good air circulation.
Using bark and wooden ceilings are purposed for air exchange of the house and avoid the heat from the roof entered the house. The thickness of bark and wooden ceilings is effective to use for building construction materials.

4. Conclusions

The understanding of Malay values is penetrated through the concept, symbols, and form of house construction. The meanings of place and rooms are functioned and matched with the customs and behavior of the users, and the meanings of symbols of every ornament used as well. It can be concluded that Malay house architecture is a civilized building showing the symbols of responsibility to family. More important point is that all the values of Malay customs and traditions are based on Islamic values which are inherited from the former of kingdom palace.
5. Reference:

[1] Effendi, T. 2002. Dasar-dasar bangunan tradisional Melayu Riau

[2] Effendi, T. 2013. Lambang dan Falsafah dalam seni bina melayu

[3] Jamil, Nizami dkk. 2011. Sejarah Kerajaan Siak.

[4] Mudra, A. M. 2003. Rumah Melayu.

[5] Kosim, HR. 2012. Syair Raja Siak. Cetak Ulang dari Koleksi Manuskrip. Fakultas Ilmu Budaya.

[6] Riau, Departemen Pendidikan dan Kebudayaan. 1986. Arsitektur Tradisional Melayu Daerah Riau

[7] Samra, B. 2015. Konsep Ruang Dalam Rumah Lama di Kawasan Senapelan Pekanbaru. Jurnal Arsitektur (Arsitektur Melayu Dan Lingkungan), 2(2503–3859), 23-36.

[8] Hamidy, UU dan Ahmad, M. 1993. Beberapa Aspek Sosial Budaya Daerah Riau.