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ARCHITECTURAL CHARACTERISTICS OF MALAY TRADITIONAL HOUSES THROUGH DECORATIVE ELEMENTS: A COMPARISON BETWEEN PERAK LIMAS' HOUSE (PLH) AND JOHOR LIMAS' HOUSE (JLH)

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ABSTRACT

Malay Traditional houses were classified based on roof design, spatial organization, construction method, geographical setting and decorative elements particularly at every state in Malaysia. This article analyzes decorative elements on the traditional Malay houses in two states; Perak Limas' House (PLH) in Perak and Johor Limas' House (JLH) in Johor. The research aim is to establish the architectural characteristics of both PLH and JLH. This can be achieved by identifying the existence of decorative elements and carrying out a comparative study on both PLH and JLH on the decorative elements as the main architectural characteristic. Twenty-five of PLH and JLH were selected for the study. The study found similarities and dissimilarities that contribute to the extension of aesthetical theory of the Malay traditional house in Malaysia. The findings established the architectural attributes of traditional houses in Perak and Johor through decorative elements.

Keywords: *Malay, Traditional house, Heritage, Rumah Limas*

INTRODUCTION

The architectural design of Malay traditional houses was derived from several aspects such as environmental, social and cultural. It was built by the local carpenter or "tukang" that normally mastered the carpentry skill from older generations. To the Malay community, a dwelling is more than the need for shelter. A house is a manifestation of their thoughts, beliefs and religions that shape their worldview. Thus, Islamic religion as the faith and customary practices of the Malay "adat" is the main domain in the formation of a traditional Malay house. The term "architecture" is the manifestation of the society and their cultural practice which reflects the society's way of life, their belief and philosophy; 'all encompassing; forms important components in the uniqueness of a culture'(Nasir; 1987; Rasdi, 2004; Rashid, 2007; Jahn, 2017)

In defining Malay traditional houses, previous researchers have conducted various methods to classify its architectural typology. Some of the research analysis were based on roof design, spatial organisation, construction method, geographical setting and decorative elements. Decorative elements are one of the major components in Malay traditional architecture. It reflects the understanding of integration between functionalism and aesthetics. It represents the uniqueness and beauty of Malay symbols, arts, philosophy as well as great design work by local craftsmanship or carpenter. Decorative elements were designed intentionally to facilitate and express the respect for Malay culture through the design structure of ornamentation. Most importantly, the main architectural element in signifying the characteristics of traditional houses in every state in Malaysia is the decorative elements. This study aims to investigate these decorative elements that are present in both designs of Limas' houses in the states of Perak and Johor.

LITERATURE REVIEW

An Overview on Perak Limas' House (PLH) and Johor Limas' House (JLH)

The distinctive feature of Rumah Limas or Limas house is based on the

roof design. The roof design of Limas house began to be known in the early 20th century. It was believed that it is an imitation of the Dutch style during the colonial era. The usage of zinc as a roofing material had contributed to the change in roof design of Limas' house. Perak Limas' house (PLH) is well-known on the west coast and southern of the peninsula of Malaysia. The origin of the word "limas" is difficult to determine. the word “limas” comes from the word “five” because the roof of this house type usually has five ridges. (Halim Nasir,1987)

In Perak, most of the authentic traditional Malay traditional architecture can be found along the riverbank of Sungai Perak where the early Malay settlements were established. An architectural study along Sungai Perak established two types of traditional Malay architecture which are:

a)Rumah Bumbung Melayu or Rumah Kutai (RK)

Studies conducted by previous researchers found that RK was the earlier architectural style of the Perak Malay houses in comparison to PLH. Apart from the timeline, the roof design and construction detail also marked the difference between the two houses. Generally, most of the RK were built before the 1900s. The most common roofing material used for RK is the attap (a thatch made from nipah and other palm trees found in the local natural vegetation) (Anuar. 2005; Norhasandi, 2012 and Sabrizaa, 1998, 2017)

b)Rumah Limas Bumbung Perak or Perak Limas' House (PLH)

The roof design determines the main difference between RK and PLH. The earliest PLH found was built circa 1900s and continued until the 1970s with certain architectural design development. The spatial design of the house also consists of rumah Ibu (main living room in the middle), rumah anjung and serambi,at the frontage of the house, rumah selang is the middle part connecting both dapur and rumah ibu and lastly rumah dapur (kitchen) located at the back of the house. All of these spaces form a comprehensive architectural vocabulary that represent the traditional architecture of the Perak Malays.

JLH was architecturally influenced from the Riau-Lingga in the Indonesian, Dutch and English style (Mastor, 2006). The people of Bugis had migrated to the Malay Archipelago after the arrival of the Dutch East

India Company in 1669 with the goal of monopolising the spice trade. Several of the traditional and hybrid Malay houses can be classified mainly by their basic roof design. The roof form of Rumah Bumbung Limas was architecturally derived from pyramidal concept and fitted with 'V' shape 'tebar layar' at the top of the roof as to allow natural ventilation to cool the house.

Table 1. Summary of Architectural Typology

No	Architectural typology	
1	Rumah Limas Bumbung Perak or the Perak Limas' House (PLH). Built after circa 1900's. PLH can be found all over the state particularly along the riverbank of Sungai Perak. Roof design is the determining factor which is the main feature of PLH.	
2	Rumah Limas Johor or the Johor Limas' House (JLH) JLH can be found all over the state particular-ly Muar, Tangkak, Pontian, Batu Pahat. In principle the roof design is almost similar to PLH. JLH is believed to have been influenced from Bugis.	

(Source: Author)

Decorative Elements of Malay Traditional Houses

Two main components in investigating traditional Malay architecture include:

i.The physical aspects

ii.The non-physical aspects

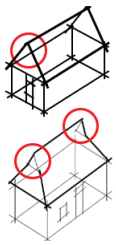
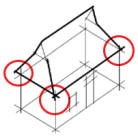
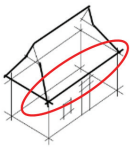
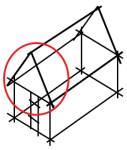
The physical aspects include:

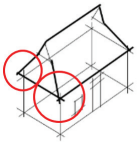
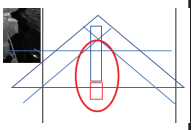
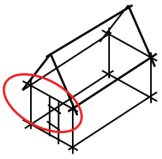
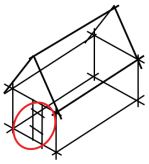
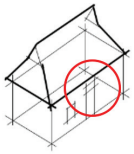
i.Structural components (i.e tiang, alang, gelegar, rasuk, kasau

ii.Non-structural components

Decorative elements are the non-structural components and it can be considered as an additional component to the building that adds an aesthetical value. Discussion on typology, terminology and the function of each decorative elements are explained in the table below. Figure 1 listed 16 sixteen (16) decorative elements and detailed explanation of a particular traditional Malay house. (Halim, 1987; Hanafi, 2000; Norhaiza, 2004;

Sabrizaa, 2008.2017; Jamilah, 2017).

CODE	DECORATIVE ELEMENT	IMAGE	POSITION
TL	**Tunjuk Langit** (TL) (literally means pointed to the sky). It is a piece of deco-rative element in an upright position at the tip of the gable end; commonly used in houses and palaces in Penin-sula Malaysia. The batang type is a piece of decorative timber or rod and is commonly used for Limas' roof		
SN	**Sisik Naga** (SN) (literally means drag-on fin). Sisik Naga refers to the decorative carvings along the ridge of a roof (perabung and rabung atap) Other names are kemuncak, naga-naga, puncak rabung		
SB	**Sulur Bayung** (SB). Sulur Bayung refers to a decoration on the corner of a roof edge. Other names are sulo bayung, sayap layang-layang, sayap layangan, ekor Itik, anjong balla', som.		
AA	**Ande-Ande** (AA). Ande-ande is the term used in Kelantan and Terengganu for fascia board. It is the horizontal decorative timber roof eaves covering the timber rafters (kayu kasau). Other names are papan meleh, papan pator, papan cucuran atap, papan kaki atap, kening, papan cantik, papan manis.		
PL	**Pemeleh** (PL). Other names for kayu pemeleh are peles, pemeles, papan layan. Kayu pemeleh is actually a pair of timber pieces located on two fascia ends of a gable roof (tebar layar). The ones covering kasau lintang or kasau jantan is called peles or pemeleh in Kelantan and Terengganu but called papan layang elsewhere. Kayu pemeleh or peles is shaped slightly curving and sharpens towards the top as a sign of strength in the design lan-guage of houses in Kelantan, Tereng-ganu and also in Cambodia and Pat-tani in Thailand.	 	 

KC	**Kepala Cicak** (KC) (literally means lizard head) Identified as a type of end decoration to tumpu kasau or papan meleh.		
TG	**Tiang Gantung** (TG) (literally means hanging column). Other names for tiang gantung are saka bentung, tiang guntung, tiang sotoh. In traditional houses of Negeri Sembilan it looks like a small carved hanging column positioned at the tip of the alang that is supporting the main kasau jantan serambi and is called tiang guntung. Also called saka bentung in the traditional Javanese architecture but in the houses found in Negeri Sembilan it is known as tiang sutoh.		
LB	**Lebah Bergantung** (LB) (literally means hanging bees). Found at Rumah Kutai(RK) houses in Perak; as a style of hanging column at the end of alang panjang, rumah ibu, that is constructed as a set (left and right) on the bottom of the gable end of the roof (tebar layar). It is round in shape and the size of the local water vessel (labu air) looking very similar to the bees' nest.		
KK	**Kekisi** (KK) Other names are Kisi-kisi, kekipas, jeriji, jeruji, terali. Decorative piece of timber or rod at the opening of a window function as window grill. Kekisi for istana and noble house is made by carving timber plank with peforated panel either with relief or non relief motifs.		
GB	**Gerbang** (GB) (Archway) Decorative piece of timber as an arch at the entrance of a house or used for dividing space usually between Anjung and Rumah Ibu of the main house. GB can be commonly found at PLH		
GP	**Gerbang Pintu** (GP)(Arch door) Decorative piece of timber as an arch at the entrance opening of a house particularly for the main door.		

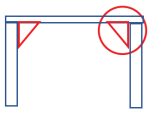
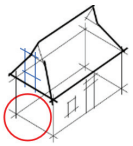
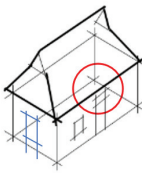
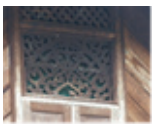
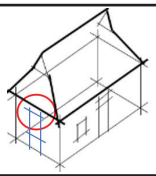
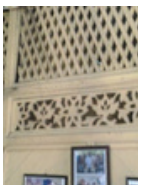
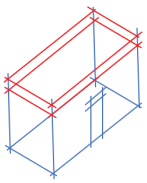
SK	**Sesiku Keluang** (SK). Decorative piece of timber normally in the shape of a triangle fixed to the column and sometimes functions as a support to the beam. Otherwise it is for decorative purpose.		
PM	**Pagar Musang** (PM). Balustrade in the form of timber rod or timber plank often beautifully carved and arranged to decorate the window opening. It func-tions as a safety feature apart from its aesthetical role. The other names also known as Jeriji, Jerejak, Pagar Tingga-lung.		
KP	**Kepala Pintu** (KP) (literally means door head). This is a decorative piece of timber on top of the door. Normally carved with floral pattern, Quranic verses calligraphy or simple motif of jejala (lattice work). Apart from aesthet-ical reason its function is to allow suffi-cient cross air ventilation to flow into the house.		
KT	**Kepala Tingkap** (KT) (literally means Window head). A decorative piece of timber located on top of the window. Normally carved with floral pattern, Quranic verses calligraphy or simple motif of jejala (lattice). [7].		
LA	**Lubang Angin** (LA) (literally means air hole). A ventilation hole or panel located mostly at two locations such as wall and roof. Lubang Angin at roof area is actually located at gable's end whilst Lubang Angin of the wall is commonly found at the upper level of the wall in the form of carving or lat-ticework known as jejala.		

Figure 1. Summary of Decorative Elements

Source: Author

METHODOLOGY

This research aims to establish the architectural characteristics of both PLH and JLH. This can be achieved by identifying the existence of decorative elements and conducting a comparative study on both PLH and JLH particularly on the decorative elements as the main architectural characteristic. As discussed earlier, PLH are located in the state of Perak

whilst JLH in the state of Johor at the southern part of the Peninsula. Twenty-five (25) PLH and JLH houses were selected from each state. The selection was done based on their best level of authenticity, architectural type, current physical condition, accessibility and geographical factor. The data collection is a combination of two previous studies carried out by the authors. Study 1 reported in Iryani et. al. (2020) on PLH. Sungai Perak is the location of most authentic traditional houses. All PLH were selected from traditional Malay villages from 5 areas along Sungai Perak which are Kuala Kangsar, Manong, Bota, Parit and Lambor. Based on previous studies on JLH reported by Nurfaisal et. al (2019) all JLH were selected from four historical areas of Johor which are Muar, Tangkak, Benut, and Batu Pahat. All the houses than were coded accordingly. Many houses were found to have undergone major renovation by the owner and has lost its ingenuity in terms of traditional architectural style. However, a few houses could not be included in the study because they were found to be abandoned by the owner which made it difficult to gain access to them. Besides that, many houses were found to be heavily damaged and ruined. These are some of the factors that contributed to the limitations of the scope of the study. Documentations of visual data were collected using EOS DSLR Canon 6D camera whilst semi-structured interview were done to collect verbal data from the owner of the house or the occupants. Both data were used to investigate and identify the existence of the type of decorative elements at selected PLH and JLH. The results were based on the inventory analysis produced from both studies. It was developed from the literature review of this study.

Twenty-five (25) PLH were selected for this study and were coded as (Table 1) whilst another twenty-five (25) JLH were selected and were coded as (Table 2).

Table 1. PLH location and GPS Positioning

CODE	Area	GPS
PLH1	KKangsar	(4.797586, 100.947479)
PLH2	KKangsar	(4.787324, 100.942841)
PLH3	KKangsar	(4.791505, 100.944878)
PLH4	KKangsar	(4.791723, 100.944916)
PLH5	KKangsar	(4.792849, 100.944893)

PLH6	KKangsar	(4.769046, 100.964989)
PLH7	KKangsar	(4.809263, 100.953140)
PLH8	KKangsar	(4.810440, 100.954338)
PLH9	KKangsar	(4.810744, 100.954491)
PLH10	KKangsar	(4.771876, 100.948547)
PLH11	Manong	(4.595965, 100.881981)
PLH12	Manong	(4.601509, 100.880867)
PLH13	Manong	(4.572912, 100.874680)
PLH14	Parit	(4.443276, 100.905777)
PLH16	Parit	(4.454128, 100.907036)
PLH17	Parit	(4.386045, 100.901413)
PLH18	Parit	(4.474646,100.913315)
PLH19	Bota	(4.336138, 100.895859)
PLH20	Bota	(4.363739, 100.892860)
PLH21	Bota	(4.364304, 100.893463)
PLH22	Bota	(4.363926, 100.893311)
PLH23	Bota	(4.324942, 100.907959)
PLH24	Bota	(4.346352,100.884758)
PLH25	Lambor Kanan	(4.348048, 100.874062)

Source: Author

Table 2. JLH location and GPS Positioning

Code	Location	GPS
JLH 1	Muar 1	1.983976,102.621345
JLH 2	Muar 2	1.989664,102.617088
JLH 3	Muar 3	2.010014,102.632308
JLH 4	Muar 4	2.069414,102.577774
JLH 5	Muar 5	2.067313,102.572952
JLH 6	Muar 6	2.074946,102.569618
JLH 7	Muar 7	2.047588,102.597622
JLH 8	Muar 8	2.051632,102.572334
JLH 9	Tangkak 1	2.149432,102.561256
JLH 10	Tangkak2	2.159258,102.558738
JLH 11	Tangkak3	2.159258,102.558738
JLH 12	Tangkak4	2.164486,102.556732
JLH 13	Tangkak5	2.086255,102.537948
JLH 14	Tangkak6	2.082658,102.541641
JLH 15	Tangkak7	2.079612,102.545265

JLH 16	Benut 1	1.643038,103.296806
JLH 17	Benut 2	1.688064,103.280937
JLH 18	Benut 3	1.674219,103.224914
JLH 19	Benut 4	1.679820,103.235633
JLH 20	Benut 5	1.6238193,103.22946
JLH 21	BatuPahat 1	1.882018,102.784233
JLH 22	BatuPahat 2	1.883737,102.781753
JLH 23	BatuPahat 3	1.878940,102.788734
JLH 24	BatuPahat 4	1.878459,102.789558
JLH 25	Batu Pahat 5	1.870325, 102.801342

Source: Author

RESULTS AND DISCUSSIONS

The data were collected through site observation inventory on the 16 decorative elements carried out on both PLH and JLH. Below is the list of inventories recorded at both PLH and JLH as reported in Table 3 and Table 4 respectively. Sixteen decorative elements were coded as TL-tunjuk langit, SN-sisik naga, SB-sulur bayung, AA-ande-ande, PL-pemeleh, KC-kepala cicak, TG-tiang gantung, LB-lebah bergantung, SK-siku keluang, KK-Kekisi, GB-gerbang, GP-gerbang pintu, KP-kepala pintu, KT-kepala tingkap, PM-pagar musang. All 25 PLH were coded as PLH1 to PLH 25. All 25 JLH were coded as JLH1 to JLH 25.Decorative elements that were present at PLH and JLH were marked X.

Table 3. The Presence of Decorative Elements at PLH

PLH	TL	SN	SB	AA	PL	KC	TG	LB	SK	KK	GB	GP	KP	KT	PM
1				X		X								X	X
2				X	X	X								X	
3				X	X	X					X			X	
4	X			X	X	X									
5				X	X	X					X			X	
6				X	X	X					X			X	
7	X			X	X	X					X			X	
8				X		X				X	X			X	
9	X			X		X					X			X	X
10	X			X	X	X					X			X	
11	X			X		X					X				X

12				X	X	X					X			X	
13				X	X	X				X	X		X	X	X
14				X		X				X				X	
15				X	X	X					X				
16					X									X	
17				X	X	X					X			X	
18	X			X	X	X					X			X	
19				X	X	X							X	X	
20				X	X	X					X			X	
21	X			X		X							X		
22				X	X	X				X					
23	X			X	X	X				X	X			X	
24				X	X	X					X			X	X
25				X	X										
TOT	9	0	0	24	19	23	0	0	0	5	16	0	3	19	5
%	36	0	0	96	76	92	0	0	0	20	64	0	12	76	20

Source: Author

Table 4. The Presence of Decorative Elements at JLH

JLH	TL	SN	SB	AA	PL	KC	TG	LB	SK	KK	GB	GP	KP	KT	PM
1				X									X	X	
2	X				X						X			X	X
3													X	X	X
4													X	X	X
5	X			X	X								X	X	X
6				X										X	X
7				X									X	X	X
8	X			X	X								X	X	X
9	X												X	X	X
10				X	X									X	X
11	X			X	X								X	X	X
12					X						X		X	X	X
13					X									X	X
14											X			X	X
15				X									X	X	X
16					X								X	X	X
17	X			X	X						X		X	X	X
18	X			X	X								X	X	X
19	X			X	X						X		X	X	X
20				X									X	X	X

21				X									X	X	X
22					X						X		X	X	X
23				X							X		X	X	X
24	X				X								X	X	X
25														X	
TOT	9	0	0	14	13	0	0	0	0	0	7	0	20	25	23
%	36	0	0	56	52	0	0	0	0	0	28	0	80	100	92

Source: Author

Table 5. Comparative Analysis of the Presence of Decorative Elements at JLH and PLH

			Decorative Elements	PLH (%)	JLH (%)
1	ROOF	TL	Tunjuk Langit	36	36
2		SN	Sisik Naga	0	0
3		SB	Sulur Bayung	0	0
4		AA	Ande-Ande	96	56
5		PL	Pemeleh	76	52
6		KC	Kepala Cicak	92	0
7		TG	Tiang Gantung	0	0
8		LB	Lebah Bergantung	0	0
9	WA	SK	Sesiku Keluang	0	0
10		KK	Kekisi	20	0
11	D	GB	Gerbang	64	28
12		GP	Gerbang Pintu	0	0
13		KP	Kepala Pintu	12	80
14	W	KT	Kepala Tingkap	76	100
15		PM	Pagar Musang	20	92

Source: Author

CONCLUSION

The main objective of this study is to compare the presence of decorative elements in both PLH and JLH.

a.Generally, most of the sixteen decorative elements studied in Malay traditional houses were found in both types of houses. There were 9 decorative elements found at PLH and 7 decorative elements found at JLH. 2 decorative elements which were found at PLH but were not found at JLH include KC and KK.

b.TL, AA, PL, KC, KK, GB, KP, KT, PM are present at PLH.

c.TL, AA, PL, GB, KP, KT, PM are present at PLH.

d.AA scored highest presence (96%) at PLH.

e.KT scored highest presence (100%) at JLH

f.AA, PL, KC, GB and KT scored more than 50% presence in PLH. This indicates the four major decorative elements that shaped the characteristic of JLH.

g.AA, PL, KP, KT and PM scored more than 50% presence in JLH. This indicates the five major decorative elements that shaped the characteristic of JLH.

h.KT was found at both PLH and JLH. The presence of KT was not only for aesthetic reasons but also functions for cross ventilation by maximizing wall openings. Two types of KT found at both PLH and JLH are the rectangular and the semi-circular (fan like) shape.

i.One of the common characteristics of Malay traditional house is both PLH and JLH were built on stilt which elevates the house from the ground. It is common for a vernacular house in the tropical climatic zone for security and safety reasons; environmental reasons and cultural reasons. This study found that most of PLH are much higher from the ground (around 2 – 2.5m) than JLH (around 1.5m). The lower part of the house at the ground is called Kolong. For PLH this space is used as a place to relax during the daytime. This study found that decorative fan was used to cover the bottom part of the house called Pagar Musang (PM) or Kekisi (KK) for JLH. It is also known as Banji. This decorative element enhances the architectural characteristics of JLH. Even both the terms Kolong and Banji only existed at Johor.

j.Openings found at both PLH and JLH are using the window design called Tingkap Labuh (long window) simply because it has a full height opening from the floor level to the above. This is to provide maximum opening for good cross air ventilation. Both PLH and JLH used PM as decorative elements and function as balustrade to protect people from falling down. This study found that PM used at PLH is different from PM used at JLH. 4 inches to 5 inches width of carved timber piece were used at JLH compared to woodturning carving array used at PLH. This appearance also contributes to the main characteristic of JLH.

k.Openable louvred timber window is popularly used as Daun Tingkap or the window piece used at JLH. However PLH used solid timber plank as their window piece. These elements contribute to the main

characteristic of JLH.

l.GB were mostly found at PLH (64%) and only 28% at JLH. GB is one of the major characteristics for PLH and has its own design,

m.SN, SB, TG, LB, SK and GP are not found at PLH. (0%)

n.SN, SB, TG, LB, SK, GB, GP, KC and KK are not found at JLH (0%)

As discussed earlier decorative elements were considered or defined as additional or extra elements of the more functional structure elements. While a traditional architecture decorative element play an important role in shaping the characteristics and identity of a particular house. This study contributes to the establishment of decorative elements in both PLH and JLH. The findings would add to the development of the aesthetical theory and concept of the Malay traditional architecture especially the PLH and JLH.

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