Identity for Traditional Sarawak Malay House. Preliminary Research Findings In The Roof Design.

Adibah Binti Haji Yusuf
adibah.indi.unimas@gmail.com
Institute of Design & Innovation, University Malaysia Sarawak (UNIMAS), Malaysia

Khairul Aidil Azlin Abd. Rahman
azlin@indi.unimas.my
Institute of Design & Innovation, University Malaysia Sarawak (UNIMAS), Malaysia

Yakup Mohd. Rafee
mryakup@faca.unimas.my
Faculty of Applied and Creative Art, University Malaysia Sarawak (UNIMAS), Malaysia

Abstract

The research concentrates about the traditional Sarawak Malay house and the research focus sought to establish an identity and in pursuit of archetypal design of Sarawakian Malay house. Preliminary study is conducted to establish design element essential to form the identity basis of a house, a parameter to define a Sarawakian Malay house. Therefore this study sought to discuss about one of fundamental aspect recognized to be the parametric indicator that is the roof design. The research method engaged thorough field study conducted by the researcher in various Malay settlements throughout Sarawak. 76 Malay settlements were selected as study samples. From the sample pool, 12 traditional houses were selected to be illustrated in eight 3D drawing to allow detailed observation of roof form and design of said house samples. Eight samples chosen displayed two distinguish design evident from the roof design – saddle roof design and gable roof design.

Keyword : Malay house, design, Sarawak Malay house, saddle roof, gable roof

1. Introduction

Sarawak is a distinctively unique state owing to its diverse ethnicity. Oral resources cited the history of Sarawakian Malays began with the family of Datu Merpati Jepang founding a settlement in Sarawak. According to one source from Yayasan Budaya Melayu Sarawak, the descendants of Datu Merpati Jepang settled down hence forming a local aristocracy in Sarawak. Brunei's further expansion into Sarawak brought the second of wave of Malays settlers. Northward migration of Kalimantan Malays equally contributed to establishing Sarawakian Malay community. The transmigration trend throughout the Malay Archipelago continued uninterruptedly during the Brookes reign and as a consequent, a local community of Malays in Sarawak is formed. The Malay settlers brought with themselves inherited traditional community structures hence leading to the creation of chieftainship in various major rivers in Sarawak.

Ethnic Malay is one of three major ethnic denominations in Sarawak followed by Iban and Chinese. Predominantly, the population of ethnic Malay in Sarawak is at 551,567 out of Malaysian citizens of Sarawakian origin totaling to 2,286,067 in number in 2010. Kuching Division hosts the largest bulk of Malays numbering to 213,011; 212, 849 of those reside in Kuching City and the remaining 162 reside in Padawan administrative district. This 2010 consensus figure is sourced from a population consensus according to ethnics in small district and Malaysian states including Sarawak (Source: Department of Statistic of Sarawak 2010).

2.The Development of Traditional Malay Houses in Peninsula Malaysia

Prior to any exposure of foreign influence and introduction of sophisticated construction technology into this region, vernacular Malay House tends to be simplistic in nature. Primitive construction techniques rule the land and profoundly reliant on the readily available surrounding construction material resources such as sago-palm (rumbia), marah-palm (nipah), softwoods, *nibong*-palm trunks, betel nut palm trunks as well as bamboo. Construction technology system is heavily reliant on joint knotting technique, with the likes of rattan or tough roots introduced to jointing – utilized to attach and fasten columns, walls and roofing. According to Abdul Halim Nasir (1985), posts were trimmed to square and precisely perforated to accommodate beams, lintels and wedges. This technique allows flexible re-arrangement option as well as imposing minimal damage to other structures.

It is in early days too that construction tools are often simple and low tech in nature. Malay Houses is fundamentally a basic shelter – protecting its dwellers from rain and shine. This type of house is known as '*rumah pisang sesikat'.* This is consistent to the historical socio-economical context in the olden times (Abdul Halim Nasir & Wan Hashim Wan Teh1997).

Malay Houses often built to be fully responsive and sensitive to surrounding topographical features. For instance, maritime-fishing village Malay house located near the riverside, often comprises of columns driven deep into the riverbed and raised flooring. Planks placed atop of columns to form platform or landing quay for boats. On the other hand, a typical Malay house for a paddy farmer or agriculture community, will be constructed with higher raised floor as to permit sunlight penetration as well as to accommodate a working and relaxing space underneath. Grains shed will be erected and the remaining space will be utilized as a working and relaxing space, primarily to dry and process paddy grains into rice. Ismail Azman Omar (1979) hypothesized that a house built in a farming environment tends to be constructed with higher raised flooring largely due to safety reason which is to keep the dwellers away from wild animals.

Lifestyle has always been a driving force influencing design decision of a Malay house construction. Malays are strict adherent to an intertwined-complex system of customs and beliefs, inherited from generation to generation – ranging from animism, Hindu-Buddha influence, Islamic to Western ideas. It certainly contributed towards the design development of Malay house as well as its rich customs. For example, the spatial and component arrangement as well as units constituting a house is meticulously planned and designed conforming to variety of customs and religious factors. Difference in floor level, entrance placement and even option of ornamentation are an embodiment of the significance role religious and custom requirements in influencing design decision. Traditional Malay house is indeed inseparable from Islamic influence, obvious in its physical structures as well as the conceptual and spatial functions – strictly designed to conform religious requirements. For instance, it is extremely important that the direction of Kiblah be a central factor in positioning a house's orientation.

From architectural history perspective, two fundamental types of house are recognized as the core identity of Malay architecture – the '*Rumah Bujang'* and '*Rumah Tiang Dua Belas*'. Hilal Haji Osman (1980) proposed that both types are categorized as '*Rumah Bumbung Panjang (Saddle Roof House)' or 'Perabung Panjang (Extensive Ridge)'* (Muhammad Afandi Yahya 1995). Hitherto we could infer that the development of Malay house is linked to transformation of the roof form. This is apparent especially in the naming method established to identify traditional house in Peninsula Malaysia – based on roof-formation.

3.Early Malay House In Sarawak

Frank S. Marryat, an author who visited Sarawak in the 18th century, had in writing recounting his insight about existing houses in Sarawak he encountered. One particular example is:

"It consists of about 800 houses, built on piles driven into the ground, the sides and roofs being enclosed with dried palm leaves. Strips of bamboo are laid across, which serve as a floor." (Frank S. Marryat 1848)

It is assumed that the Malays in those days live in a dwelling made from nipah's leaves and constructed with columns, with flooring suspended high from the ground hence spared from high tide (flooding). Material for flooring is fixed or arranged perpendicular to beam grid, and purposely created micro gap in between floor planks to allow ventilation as well as to

allow dirt debris to dissipate into the gaps. High tide is likely to sweep away dirt debris falling out from the gaps. Simply put, dwellings during those times were constructed with their columns driven into the riverbed. Such specimens are still visible in several Malay enclaves in Sarawak primarily like Kampung Hilir Sibu, Kampong Nangka Sibu, Kampung Pusa, Kampung Kaba, Kampung Kupang, Kampung Kabong in Betong, etc.

F.S. Marryat further elaborated; the wealthy had better built home with walls constructed using wood planks and *Bitis* timber (*Kayu Belian*) as columns in favor of *nibong* trunks. Roofing nonetheless employed roof shingles made from *Bitis.* In those days, furnishing was minimal therefore no heavy and bulky furniture adorned the interior. Societal norms back then find themselves in no such need of tables, chairs and beds plus the virtue of then socio-lifestyle activities often only involving at most *pandan* and screw-pine (*mengkuang*) mats.

According to another study by Ilias Hasan about Sarawakian Malay architecture in Kuching City and its immediate vicinity, early Malay house in Kuching is identified as basic Malay house – square in form with steep roof. Floors were raised to approximately 5 feet to 7 feet from the ground. This space becomes the major living space and one section is partitioned to form bedroom. A simple staircase is located at façade. Local custom dictates that the stairs should have an odd number of steps. At rear part of the house, additional space is added and designed two or three steps lower than the living space in *rumah ibu*. This is the kitchen and dining space for dwellers. There is an instance where a house has a kitchen space connected to *rumah ibu* with an enclosed passageway.

4. Roofing

Traditional Malay House is deemed as a precious legacy to Malaysian architecture. It is designed and constructed by highly skilled artisans – a visual testimony to intuitive architectural skills and creativity existed in our history. According to Ibrahim Ismail (1971), there are two form of traditional house designs – fundamental form and decorative form. Both are complimentary of each other thus generating remarkable and highly treasured designs. Roof is a fundamental component to architecture and house designing. For that reason, roof has become a determining feature in classification of Malay house typology. Therefore, this research sought to classify Sarawakian Malay house according to the type of roof in use. Additionally, several roof designs and illustrations will be presented as part of the research outcome, derived from a series of field study conducted in various Sarawakian Malay settlements.

According to Abdul Halim Nasir (1985), prior to Western colonization, Malays built houses with distinctive roof design drawing inspiration from many surrounding Malay culture. The authentic Malay roof is featured as an extensive long form and gable screen (*tebar layar*) at both end. This type of roof is also constructed as an inverted V with ridges running along the whole structure. This form has since been synonymous as a Malay ethnic symbol.

'*Rumah Bumbung Panjang'* (Saddle Roof House) is one of earliest type and design in Peninsula Malaysia (Muhammad Afandi Yahya 1995). Saddle roof house consists of a long ridge skeleton constructed diagonally or horizontally. The roofing material is typically made of *nipah* thatching (*atap nipah*) or for wealthier dwellers; they might opt for imported roof shingles. Saddle roof house is a common sight throughout Malaysia. It is however, with the rise of gable roof (*limas)* since mid 19th century, the saddle roof house began to fall out of favor.

Gable roof type is another common type of traditional Malay house. The gable roof type further diversified the typology of Malay houses, thus prompting the typology be branched out into two distinguish form – a saddle roof type Malay house with one continuous horizontal ridge and a gable roof type with its five ridges. Similar to the saddle roof type, the gable roof type exists in various versions such as the *limas bungkus* type, *limas duduk* and the Dutch gablet roof style or also known as *limas potong Perak.*

Gable roof type emerged following the colonization of Western power particularly during Dutch and British colonization period. An obvious difference between two types of the house lies in their roof alignment. Saddle roof house employs a continuous horizontal ridge with gable (*tebar layar)* on both ends. Gable roof type on the other hand consists of five ridges, one in the middle and four others extending down to roof eaves in sloping angle. Upon observation, Malay houses in Sarawak and Peninsula Malaysia exhibit a similar characteristic, that is several form and variation of roof type exist.

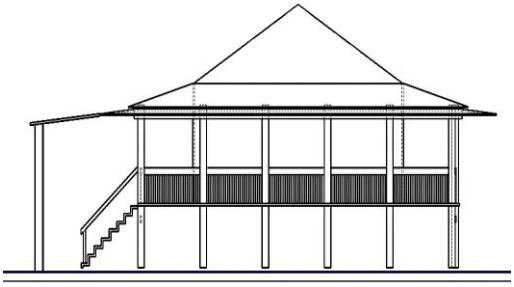
5. Method

The research conducted in 76 Malay settlements throughout Sarawak. It is through this research; all samples of selected Malay houses are documented and plotted in 3D drawings. 12 houses were selected as samples for eight 3D drawings, derived from several interviews conducted with district head, village head and senior citizens in respective settlements to obtain the oldest surviving samples. 12 houses were selected as samples for eight 3D drawings displayed below.

Sample H1- House at Kampung No.3, Jalan Ajibah Abol, Kuching, Sarawak.

Front View- 3D drawing for H1,H2,H3

Sample H2- House at Kampung Jalan Ajibah Abol, Kuching, Sarawak.

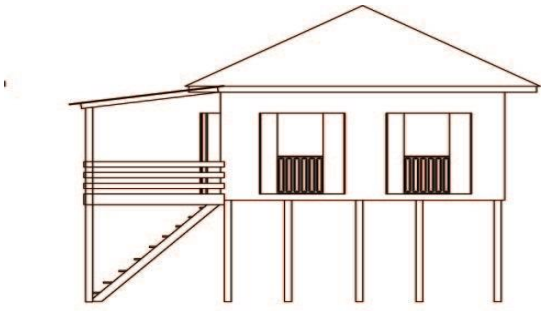


Side View- 3D Drawing for H1,H2,H3

Sample H3- House at Kampung Jalan Ajibah Abol, Kuching, Sarawak.

Sample H4- House at Kampung Hilir, Sibu, Sarawak.

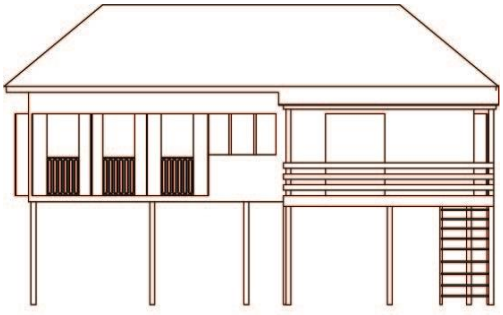
Sample H5- House at Kampung Hilir Sibu, Sarawak



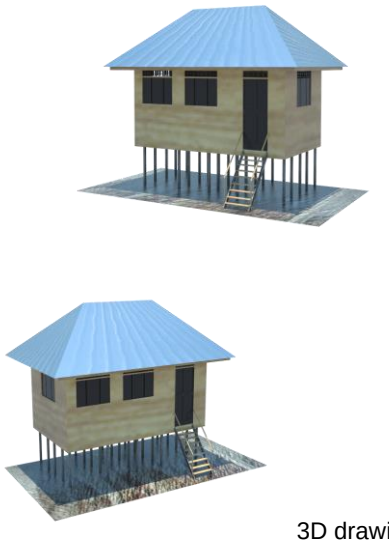
Side View- 3D Drawing for H4& H5

Sample H6- House at Kampung Hilir, Sibu, Sarawak

3D Drawing for H4& H5

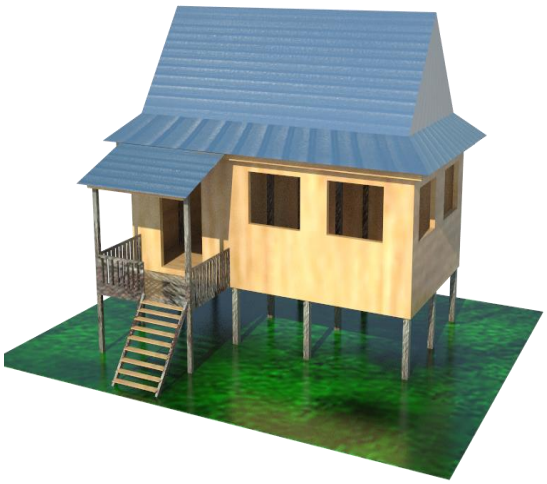


Front View- 3D Drawing for H4& H5

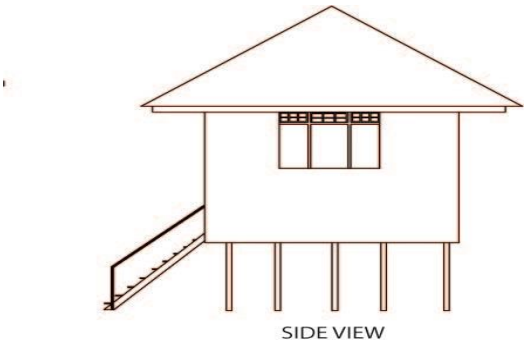


3D drawing for H6

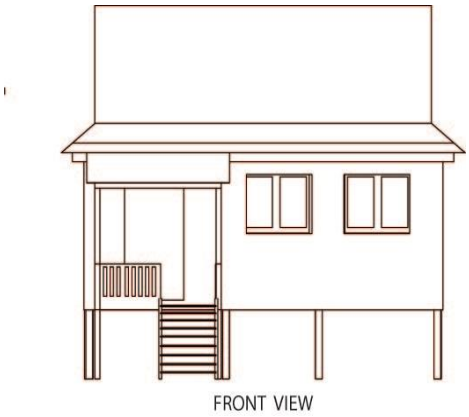
Front View- 3D Drawing for H6



3D Drawing for H7

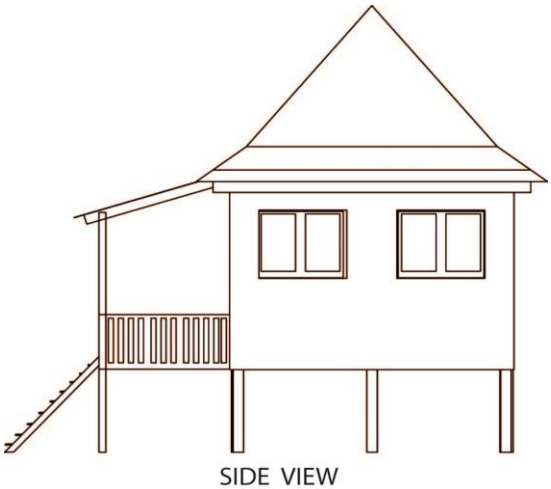


Side View- 3D Drawing for H6



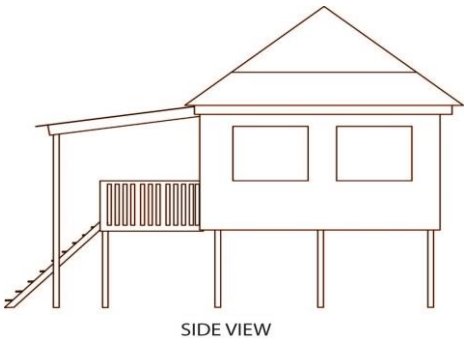
Front View- 3D Drawing for H7

Sample H7-House at Kampung Jepak, Bintulu, Sarawak



Side View- 3D Drawing for H7

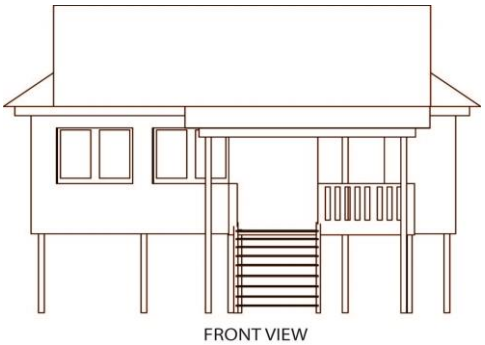
Sample H8- House at Kampung Hilir, Sibu, Sarawak



Side View- 3D Drawing for H8

3D Drawing for H8

Sample H9- House at Kampung Nangka Sibu, Sarawak



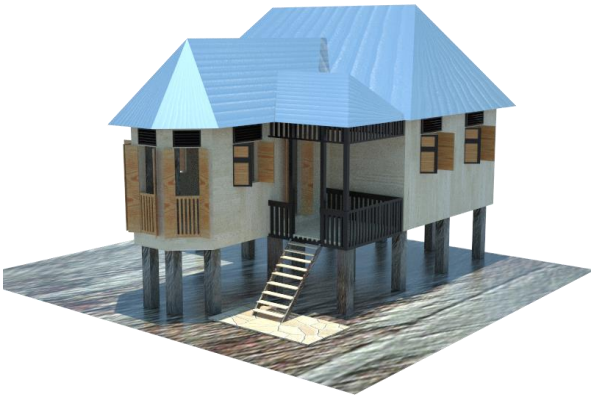
Front View – 3D for H8

Sample H10- House at Kampung Hilir Sibu, Sarawak

3D Drawing for H9 & H10

Sample H11- House at Kampung Hilir, Sibu, Sarawak

Front View- 3D Drawing for H9 & H10



3D Drawing for H11

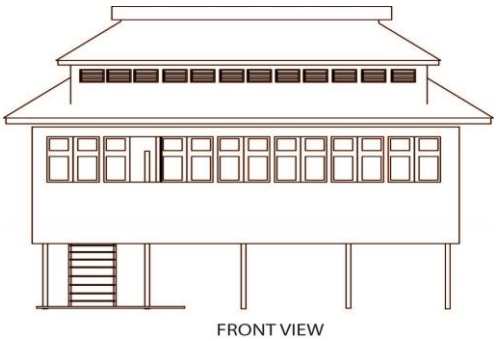
Side View- 3D Drawing for H9 & H10

Front View- 3D Drawing for H11

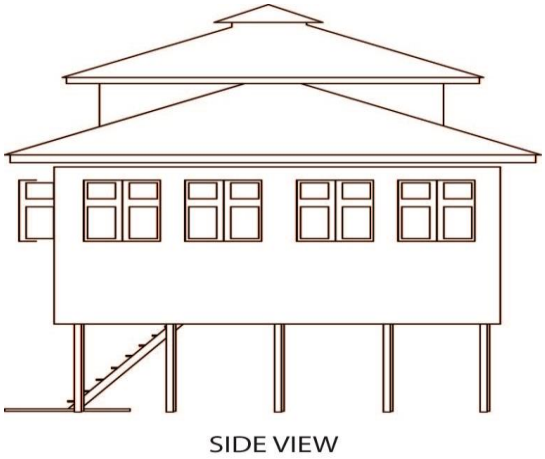
Side View- 3D Drawing for H11

Sample H12- House at Kampung Ajibah Abol, Kuching, Sarawak

3D Drawing for H12



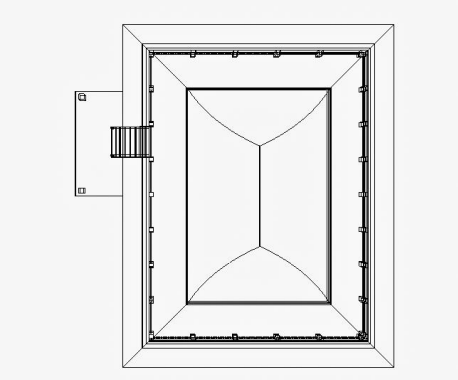
Front View- 3D Drawing for H12



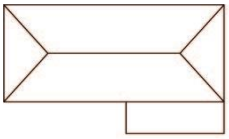
Side View- 3D Drawing for H12

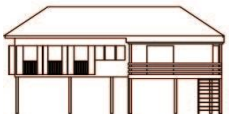
6. **Preliminary Research Findings In The Roof Design**

Initial findings are formed through following discussion where initial findings consist of mere observation on roof typology of Sarawakian Malay houses. 76 settlements were selected as case study to obtain house samples. According to the field study conducted in Malay settlements throughout Sarawak, the researcher had successfully gathered a number of house design and roof design as displayed in following diagrams.



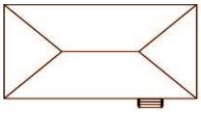
H1, H2 & H3 Roof Design





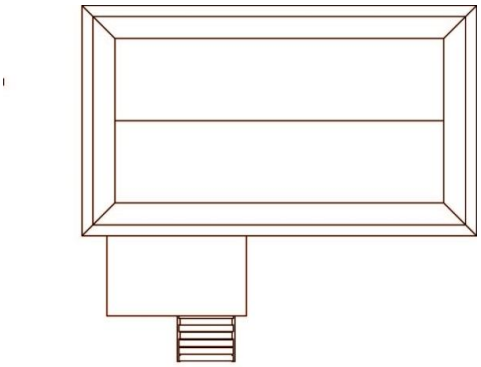
H4 & H5 Roof Design

Six of sample houses (H1, H2, H3, H4, H5 & H6) depicted comparable roof design. Even though the physical attributes displayed several slight differences in term of form and construction, nevertheless, the roof designs were similar in form. The comparative observation is more evident in roof design details as depicted in 3D illustration comparison for sample house : H1, H2, H3, H4, H5 & H6. In Peninsula Malaysia, this type of roof design is known as gable roof design (*limas)* or five ridges. This roof designs consist of five ridges, one horizontally placed with four of the rest extended down sloping to roofing eaves.



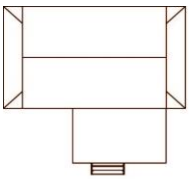
H6 Roof Design

Sample house number 7 (H7) and number 8 (H8) on the other hand, displayed disparate roof design, acknowledged as the saddle roof design.



H7 Roof Design

The Saddle Roof design is characterized by the single extensive ridge – diagonal or horizontal, noticeable in 3D illustration of sample H7 and H8.



H8 Roof Design

Sample house-H9 and H10 exhibits a hybrid between gable roof and saddle roof design and this type is relatively popular among Sarawakian Malay community. In Peninsula Malaysia, it is known as Dutch gablet roof design (*rumah limas potong Perak*) (Muhammad Afandi 1995).

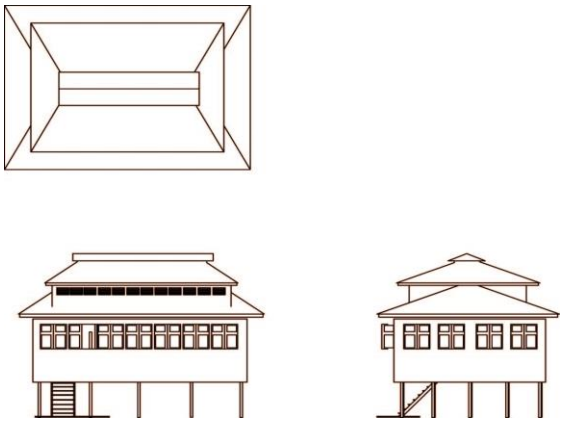
H9 & H10 Roof Design

Subsequently, sample house number 11 (H11) also displayed hybridized feature similar to sample house number 9 and number 10 (H9 & H10).

H11 Roof Design

However, the roof type design used is of '*limas bungkus´* design typology, evident from façade view (Muhammad Afandi 1995). In Sarawak, frontage as such of house sample 11 (H11) is usually the front portion or the living room. In local Sarawak Malay dialect, it is known as '*teko*'.

Final sample is a gable roof house with bulky ridge in the middle of the roof and multi-storied. This type is a rare find because such house often belongs to dignitary or high-ranking nobleman back in the olden times such as aristocrat family or '*perabangan*' clan.

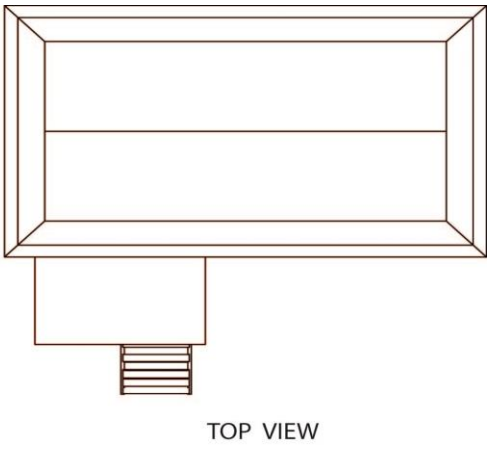


H12 Roof Design

7. Discussion

Preliminary study was conducted to determine the identity and design feature of Sarawakian Malay house by the means of investigating the roof designs. All 12 samples exhibit either two distinguishable roof designs feature – the saddle roof type or the gable roof type.

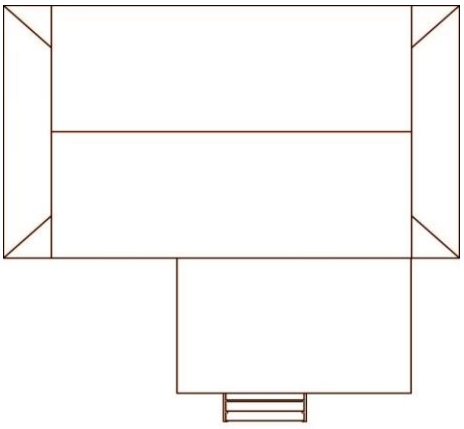
(1) Saddle roof design/Shed roof design



Sample for Saddle roof design-1

Saddle roof design is a precursor to typology and design of roof throughout Peninsula Malaysia (Muhammad Afandi Yahya 1995). Saddle roof design is composed of one continuous diagonal or horizontal ridge. Roofing material is typically made from *nipah* thatching (*atap nipah*) whereas wealthier dwellers often installed imported roof shingles. Saddle roof Malay house is a common sight throughout Malaysia. Mid 19th century witnessed the rising popularity of gable roof design thus saddle roof design began losing its appeal. In Sarawak, saddle roof design proved to be quite popular. However, in Sarawak it is more commonly known as shed roof design and among the district and village chief interviewed, many stated that shed roof design is widely used within proletariat Malays community of farmers and fishermen. Local aristocrats also employed shed roof design in their home with addition of decorative elements to distinguish their home to those of proletariat class.

Sample for Saddle roof design-2

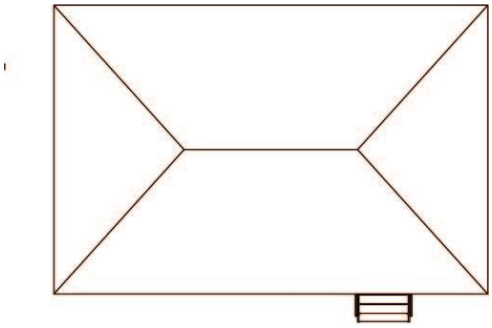


This roof type is rectangular in form from a plan view. Upper part of the roof system is a ridge running horizontally, parting two equidistant slanted downward roof surface thus forming a shape of inverted 'V' from a side view. Each end of the roof is fitted with gable screen locally known as *tebar layar*. In several samples, a tiny window with adjustable support is constructed on the slanted surface of the roof to allow cross ventilation and natural lighting. This window shall be closed from inside during the rain.

Saddle roof design/shed roof design quickly gained popularity due its simple and easy construction method. Besides, the design is flexible enough to accommodate future addition either in the front or the rear part of a house. In the old days, the construction material often used is *nipah* thatching or corkboard (*apungan*) weaved into roof shingles. These roof shingles will be installed in overlap format to prevent leakage and accelerate rain flow. In addition to the roof, *nipah* leaves are also weaved to form wall panels. Flooring employs *nibong* trunks cut into two and laid out. With newer and enhanced construction materials as well as better socio-economical prospect, the construction methods have improved tremendously over time.

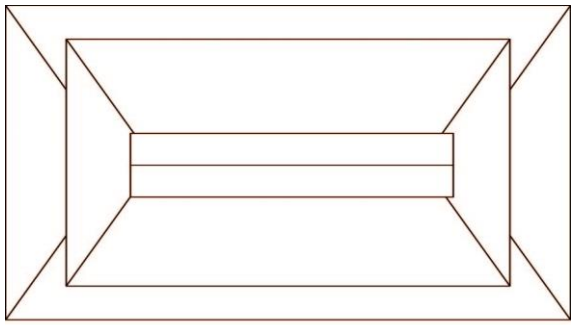
(2) Gable roof type

Gable roof type is a product of eclectic foreign influence, largely the Dutch and the British in Malay Peninsula, as well as with the advance of Islam and Indonesian architectural influence.



Sample for Gable roof design-1

Abdul Halim Nasir dan Wan Hashim Wan Teh (1997) suggested that the Western colonization particularly Dutch and British accelerated quicker transition of the design preference to adopt gable roof type over saddle roof type. Moreover, prior to the colonization, almost entire typology of Malay houses in Malaysia were of saddle roof type and colonization period marked the beginning of extensive foreign influences, thus radically changing the Malay traditional roof design.



TOP VIEW
Sample for Gable roof design -2

In Sarawak, the transformation from saddle roof house to gable roof house also took place and therefore, majority of existing Malay houses are of gable roof type. Most of gable roof house in Sarawak were built in similar height, except for several Malay settlements in Miri and Bintulu which were built slightly higher from the rest. The fact that these houses were built in location close to the forest may have resulted the houses to be constructed with higher floor level from the ground – to keep dry the floor from highly damp surrounding ground and to steer clear of wild animals (Mohamad Tajuddin Mohamad Rosli et.al 2004). Simultaneously, higher floor level keeps away the household from flooding.

8. Conclusion

This study is a preliminary attempt to establish design element essential to form the identity basis of a house, a parameter to define a Sarawakian Traditional Malay house. Therefore this study sought to discuss about one of fundamental aspect recognized to be the parametric indicator that is the roof design. Samples chosen displayed two distinguish design evident from the roof design - saddle roof design and gable roof design.

References

Abdul Halim Nasir 1985. Pengenalan Rumah Tradisional Melayu Semenanjung Malaysia. Kuala Lumpur. Loyal Press.

Abdul Halim Nasir 1988. Rumah Melayu Tradisi. Dewan Budaya , Ogos.

Abdul Halim Nasir 1993. Warisan Senibina Melayu. Institut Bahasa Kesusasteraan dan Kebudayaan Melayu, Universiti Kebangsaan Malaysia.

Abdul Halim Nasir 1996. Pembinaan Bangunan Tradisional Melayu. Amber Solara Publication.

Abdul Halim Nasir Dan Wan Hashim Wan The 1997. Warisan Seni Bina Melayu. Bangi. Universiti Kebangsaan Malaysia.

Dumarcay, J 1987. The House in South East Asia. Oxford Univeristy Press.

Edric, Ong Liang Bin 1983. Malay Houses of Kuching, Sarawak. The Sarawak Museum Journal. August.

Frank S. Marryat.1848. Borneo and The Indian Archipelago. Longman, Brown, Green & Longmans.

Hilal Haji Osman 1980. Jenis-jenis Rumah Melayu. Dewan Budaya, November.

http://ybms.com.my/sejarahmelayu.html

Ibrahim Ismail 1971. Reka Bentuk Tradisi dan Baru. Kongres Kebudayaan Kebangsaan. Kuala Lumpur. 16-20 Ogos.

Ilias Bin Hasan 1988. Senibina Rumah Melayu Sarawak, Pengkajian Terhadap Rumah Melayu Bandar Kuching. Shah Alam Selangor.

Ismail Azman Omar 1979. Konsep Ruang Rumah Melayu. Dewan Budaya. April.

Izikiwitz, K.G and Sorensen, P 1982. The House In East and South East Asia : Antropological and Architectural Aspects. Institute of Asian Studies, Curzon Press, Scandinavian.

Lawrence, R.J. 1990. Learing From Colonial Houses And Lifestyles From Vernacular Architecture by Mete Turan, Avebury, England.

Lim Jee Yuan 1987. The Malay House. Rediscovering Malaysia's Indigenous Shelter System. Institut Masyarakat, Malaysia.

Mohamad Tajuddin Bin Mohamad Rasdi 1996. The Architectural Heritage of The Malay World : The Traditional Houses, Vol 1, Universiti Teknologi Malaysia.

Mohamad Tajuddin Bin Mohamad Rasdi, Kamaruddin Mohd. Ali, Syed Iskandar Syed Ariffin, Ra'alah Mohamad dan Gurupiah Mursib (2004). Warisan Seni Bina Dunia Melayu Rumah-rumah Tradisi. Skudai. Universiti Teknologi Malaysia.

Muhammad Afandi Yahya. 1995. Simbolisme Dalam Seni Bina Rumah Melayu Kelantan. Selangor, Dewan Bahasa dan Pustaka.

Total Population By Ethnic Group, local Authority Area & State, Malaysia, Department of Statistic of Sarawak 2010.