

A Characteristic Study on the Designs and Materials of the Talang Mamak Tribe Housing

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Abstract

The Talang Mamak tribe is one of the tribes in Indonesia that relatively maintains a lifestyle of hunting and scavenging even though they now own permanent residence and farming lands. The aim of this study was to discover the characteristic designs and materials used in building the houses of the Talang Mamak tribe. The method used was the grounded theory method based on the open coding, axial coding and selective coding techniques. This method groups the houses of the Talang Mamak tribe according to a variety of structures and materials used in order to study their characteristic designs. The results of this study was that the characteristic designs of a Talang Mamak house is a simple building that are similar to the houses of the Austronesian tribe. Both have square-based shape, stilts, gable shaped and the frame of the structure is covered with a construction belt. The materials used by the Talang Mamak tribe to build their houses represents the location of their house and their environmental preserving lifestyles.

Keywords: Talang Mamak tribe, vernacular, design, material

INTRODUCTION

The vernacular architecture is identified with the kind of architecture that developed without any assistance from architects and is an adaptive measure taken by the local population in adapting to their surroundings. When this method was passed down generations by word of mouth, it became a tradition. The native population that developed the vernacular architecture was a bright population where they learned from experiences to build a building that adapts to its surroundings.

The Talang Mamak tribe, belonging to the Proto Melayu population, is a native tribe residing along the Indragiri River. They are also known as the Tuha tribe. The Talang Mamak tribe still lives isolated and traditional lives upstream the Indragiri River, in the province of Riau, Indonesia.

The houses of the Talang Mamak tribe were built using locally found materials from the forests. The houses are on stilts, with walls made of tree barks, bamboo flooring, roofs made of sago palms or salak leaves, and rattan to hold the structures together. 1

Along with the influx of external cultures as globalization takes place, the houses of the Talang Mamak tribe experiences changes in forms of design and materials used. The materials used, knowledge and local technology that once defined these houses are now slowly left behind. We can now find materials

such as zinc, nails, wood and cement used in these houses, adding to the complexity and variety of designs of the Talang Mamak tribal houses.



Fig.1. Talang Mamak Tribe Housing

Source: Balai Taman Nasional Bukit Tigapuluh, 2012

Based on this development, this study aims to discuss the designs and materials used in the Talang Mamak tribe’ s houses. Studying the characteristics of these houses will carve a path into studying this tribe which can be done by studying the designs of these characteristics.

LITERATURE REVIEW

Vernacular Architecture

Amos Rapoport (1969) defined vernacular architecture as one that develops from local

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architecture with all their traditions and optimization of local potentials such as materials, knowledge and technology.

Paul Oliver (1987) in the *Dwellings: The House Across the World*, mentioned a few concepts of vernacular architecture, that is: Rural Settlements; Types and Processes; Built from the Ground Resources that Grow; Coping with Climate; Living Spaces; Values, Symbols and Meanings; Decorated Dwellings.

Vernacular architecture according to Dell Upton in Paul Groth (1999), says that a vernacular building is an ordinary building. Upton described vernacular architecture as a naïve study of architecture, with low costs and built by traditional groups using local cultures that never change.

With that, it can be said that vernacular architecture is a development of local architecture with ecological, architectonic, and natural values based on the local climate, culture, people and surroundings.

Talang Mamak Tribe

The Talang Mamak tribe is a group of people that still lives isolated and traditional lives upstream the Indragiri River in the province of Riau, Indonesia. This group of people classifies themselves into tribes. The tribe then breaks down into smaller *tobo* and their smallest unit is called the *hinduk* or *perut* or sometimes even *puak anak*.



Fig.2. Talang Mamak Tribe

Source: Balai Taman Nasional Bukit Tigapuluh, 2012

Culturally the Talang Mamak tribe has a tradition of worshipping their kings but this system has started to fade, as they are now generally autonomous and solve issues formally via the village head. They are still animists, but a small portion has converted to Catholicism and now residing in Dusun Siamang.

They know a lot on traditional medicine. Talang Mamak tribe has benefited from 110 different plants to treat 56 diseases and 22 types of fungus medications. The Melayu tribe, on the other hand, has benefited from 182 different plants for 45 diseases and 8 types

of fungus medications. Other than that, the Talang Mamak tribe has a vast knowledge on ethno botany, being able to identify many species of plants and creatures.

Their main source of income is by shifting cultivation integrating the rubber plantation. In between farming, they scavenge the forests for *jernang*, rattan and *labi-labi*. They hunt to fulfill their protein requirements.

Morphology

The word morphology means a study of shapes (morphos). A popular dictionary states that morphology is a study of shapes, its arrangements and its changes.

Morphology presses more on how the building is shaped and how an architectural creation can be called a formal articulation. Where the character of the shapes or design is determined by its limits. Morphology includes figural quality in context to create a space that can be interpreted through patterns, hierarchy and relationship of one space to another. (Schulz, 1980)

On the other hand, Zwicky (1969) came up with a statement saying that morphology is connected to a study on shapes based generally on geometry and material structure, simultaneously connecting it to more abstract issues such as structural relationships between phenomena, activities, concepts and ideas.

With that, it can be concluded that a study on morphology does not only look at the physical changes of a shape or design but more importantly on the string of processes that underlies these changes. These changes can mark a change of idea and meaning in history.

METHOD

The study method used in this study is the qualitative study method. The method uses the theory on vernacular architecture and morphology as the background knowledge supported by information obtained from various sources and activists in the study area. The grounded theory method is then used with the open coding, axial coding and selective coding techniques (Corbin & Strauss, 1998) to analyze the data and detect the variety in the houses of the Talang Mamak tribe, grouping them to observe their characters and concepts.

Data Collection Method

The data collection techniques used in this study is documentation, interview and field observation. The field observation was done at the houses of the Talang Mamak tribe, by observing the physical and functioning values based on criteria decided early. Documentation was done by capturing photographs of the studied objects such as effect, phenomenon, and the ambiance of space in the houses of the Talang Mamak tribe. Then the interviews were done based on

a checklist designed to achieve the target of this study.

Data Analyzing Method

The analyzing method used is the inductive qualitative analysis using the theories of typo morphology of architecture and the theories of vernacular architecture as the starting point to find a representation of the typology and morphology of these houses, based on the interviews and field observation. The data of each object is then classified based on the geometric variation and additional function variation of these buildings to determine the connecting aspects to the physical attributes of the building as a discussing factor for analysis.

Stages of raw data coding was done during analysis to form a theory. The principle analysis of the theory is based on raw data deduction process into a concept that has been decided to mark that category (Corbin, 1986). The coding process is then divided into three steps, that is, open coding, axial coding and selective coding (Corbin & Strauss, 1998).

ANALYSIS AND DISCUSSION

Study Area

The study was done in the Talang Durian Cacar village, Rakit Kulim subdistrict, Indragiri Hulu district, in the province of Riau, Indonesia. This village was chosen as the study area as it was the initial residence of the Talang Mamak tribe in the Indragiri Hulu district. The village is generally a mainland with hills, with a sea level of 130-150 meters.



Fig.3. Map of Rakit Kulim District, Indragiri Hulu
Source: Rakit Kulim District Office, 2013

The village is accessible by land via the Kelayang

subdistrict (Pekanbaru-Kelayang 285 km) by car. The route lies 18 km from the Kelayang junction to the Rakit Kulim subdistrict to the village, more commonly known as the Dalex street. This journey should be made with a motorcycle trail or a two-wheeled vehicle.



Fig.4. Compilation of 44 Talang Mamak Tribe's House in
Talang Durian Cacar Village, Rakit Kulim District
Source: Faisal, 2012

The Talang Mamak tribe House Design

The houses are on stilts, either square-based or rectangle-based and use stairs or ladder to get into the house. On the walls are plank-sized holes called the *talataian*, functioning windows. The entrance is located on the opposite side. The roof design of the houses belonging to the Talang Mamak tribe is the *atap pelana*.



Fig.5. One of Talang Mamak Tribe's House
Source: Faisal, 2013

The Talang Mamak tribe uses their body parts as measuring tools. *Depa* and *hasta* are common units used by them. The tribal houses are built with pillars

as their main structure, where the pillars are buried deep in the ground or some even use umpak as foundation for those pillars. The number of pillars may be 12, 16 or 20 in total depending on the area of the building and size of the pillars used. In making the pillars, the base of the wood is the bottom part that gets buried and the tip of the wood faces upwards. The woods used as pillars are of strong wood, mainly the Kulim wood, Kapinis wood, Meranti, Malabai or even the Petaling wood.

To support the main pillar, a limb, called the supportive pillar, is added. Then an ark (*panggar*) is used to connect one limb to another. The floor is made from split bamboos. Other than bamboo, the *Kasang* tree bark can also be used, but now many prefer wooden floors. The Rasuk or long wood is used as floor beams.

The walls were made from tree bark but now wood is used. The tree barks used were the *Tarap* tree bark, *Meranti* tree bark, *Ramih* tree bark and the *Durian Burung* tree bark. The wall frame is made of jerajak and belabat where the tree bark used for walls are tied to with rattan. The doors are made of either tree bark or wood, with the *lambai-lambai* as the door frame.

The roof was made from leaves, but since the discovery of zinc, the Talang Mamak tribe now uses zinc to make their roofs. The leaves used then were the *Sikai* leaves, *Rumbia* leaves and *Salak* leaves. The roof structure consists of the sawhorse as the main supporting structure, traditionally known as *kasau jantan*. Then there are the *gulungan* that functions as rings and *kasau banyak*, the rafters. The cross beam is called the *halang pandak* and the ring balk called the *halang panjang*. The tip of wood used in buildings must always point towards the sunrise or eastwards, and the wood must always be arranged in parallels.

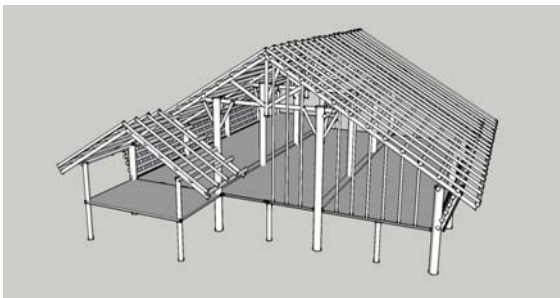


Fig.6. Talang Mamak Tribe's House Structure
Source: Faisal, 2013

Category of Roof Design

Seen from its physical attributes, the houses of the Talang Mamak tribe have a variety of designs and materials used that differentiates one house from another. The difference can be seen distinctively, be it from the aspect of design, materials or details.

Based on the research done on the elements of roof design in the houses of the Talang Mamak tribe, a percentage of roof design applications are obtained.

This percentage can be seen in the following diagram.

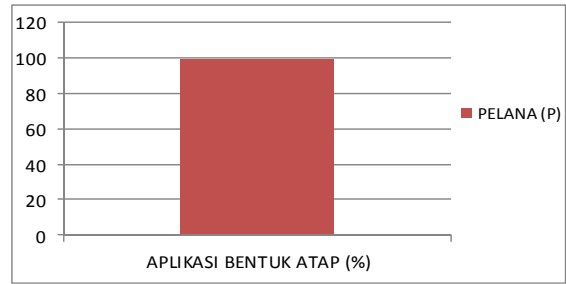


Diagram.1. Percentage of Roof Figure on Talang Mamak Tribe's House
Source: Faisal, 2013

It can be seen in Diagram 1 that 100% of the roof design applied is the atap pelana and no other. This confirms the fact that the Talang Mamak tribe's houses have only one roof design- the atap pelana.

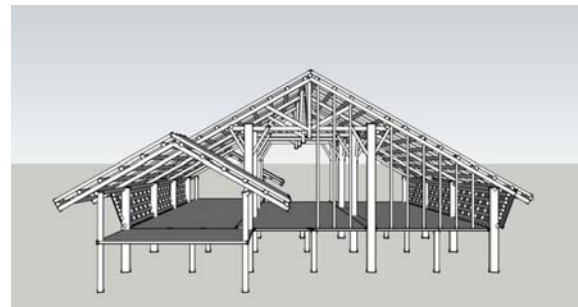


Fig.7. Atap Pelana Structure in Talang Mamak Tribe's House
Source: Faisal, 2013

The study done based on the elements and materials used also show percentages of materials and details of the roof. It can be seen in the following diagram.

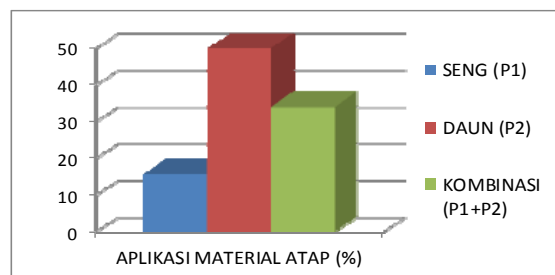


Diagram.2. Percentage of Material Application on Talang Mamak Tribe's House
Source: Faisal, 2013

In Diagram 2, we can see that the materials used for making roofs are zinc (P1) by 15.9%, leaves (P2) by 50%, and the combination of both zinc and leaves (P1+P2) by 34.1%. Also observed in Diagram 3 that the application of roof details involving nails (Q1) is 15.9%, rattan (Q2) is 50% and the combination of nails and rattan (Q1+Q2) is 34.1%. The comparison

made among these two observations is that the materials used for roofs are directly proportional to the details of the roof. If the material for the roof is leaves, hence the detail used would be rattan. If the material used is zinc, then the detail used would be nails. The same goes for when the combination of leaves and zinc is used for the roofing, the details used is the combination of nails and rattan. This was observed based on the same percentages between the materials and the details.

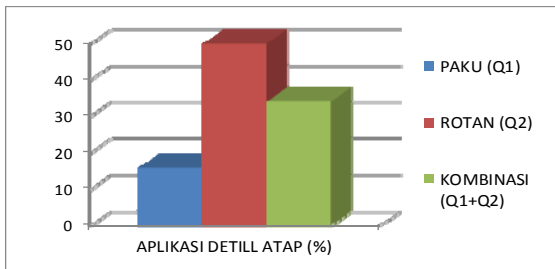


Diagram.3. Percentage of Detail Material Application on Talang Mamak Tribe's House
Source: Faisal, 2013



Fig.8. Variation of Material Application on Talang Mamak Tribe's House : Zinc (left), Leaves (Center), and Combination of Leaves and Zinc (Right)
Source: Faisal, 2013

Therefore it can be said that a few types of roof designs are found in the houses of the Talang Mamak tribe, that are:

1. The type of roof design of the Talang Mamak tribe's house is the gable shaped roof.
2. The materials used for the roof are leaves, zinc or a combination of both.
3. The details used for the roof are nails, rattan or a combination of both.

Category of the Walls

The houses where the Talang Mamak tribe lives have different type of walls from each other. The elements of the walls can be categorized into a few types that become the basic of forming those walls. The criteria of categorization are the wall design, the wall material and the details of the wall.

Based on the research done on the elements of wall design in the houses of the Talang Mamak tribe, a percentage of wall design applications are obtained. This percentage can be seen in the following diagram.

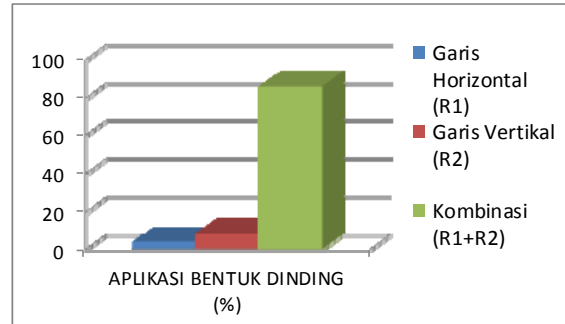


Diagram.4. Percentage of Walls Form on Talang Mamak Tribe's House
Source: Faisal, 2013

Seen from the use of lines on the wall design, there are three types of lines used; the horizontal line, vertical line and the combination of both horizontal and vertical line.

In Diagram 4, we can see that the application of the combination of both horizontal and vertical lines of the wall design (R1+R2) is the largest percentage, 86.4% followed by use of only horizontal lines (R1) by 4.6% and vertical lines (R2) by 9%.



Fig.9. Line and Shape on The Walls of Talang Mamak Tribe's House
Source: Faisal, 2013

Observations on the wall materials used by the Talang Mamak tribe can be seen in Diagram 5.

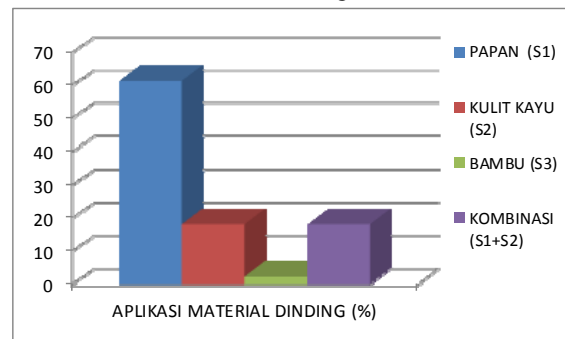


Diagram.5. Percentage of Wall Materials on Talang Mamak Tribe's House
Source: Faisal, 2013

From Diagram 5, we can see that usage of wood (S1) is as big as 61.4% (27 houses), tree bark (S2) by 18.2% (8 houses), bamboo (S3) by 2.2% (1 house) and the combination of wood and tree bark (S1+S2) by 18.2% (8 houses). Hence, we can categorize the

wall materials used by the Talang Mamak tribe into four types; wood, tree bark, bamboo and combination of wood and tree bark.



Fig.10. Materials on Wall of Talang Mamak Tribe's House
Source: Faisal, 2013

There are opening details on the walls of the Talang Mamak tribe's houses. The three types of opening are windows, the *talataian* (a long opening along the wall with the height of approximately 10cm and width depending on the length of the wall), and the combination of both windows and *talataian*.

Figure 6 shows the percentage of the opening details used in these houses. There are 29.5% of houses using windows (T1), 59.1% of houses using the *talataian* (T2) and 11.4% of houses using the combination of both windows and the *talataian* (T1+T2).

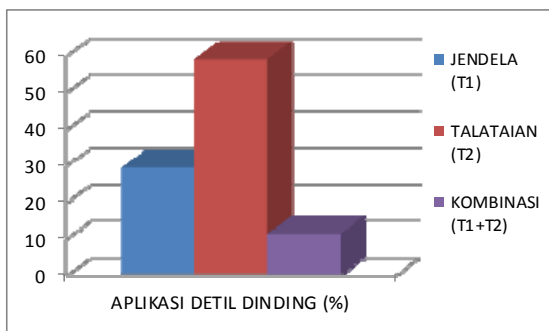


Diagram.6. Percentage of Detail Wall Materials Application on Talang Mamak Tribe's House
Source: Faisal, 2013

It can be concluded that the walls of the Talang Mamak tribe houses can be divided into:

1. The wall designs with horizontal lines, vertical lines and the combination of both horizontal and vertical lines.
2. The materials used for the walls that are wood, tree bark, bamboo and the combination of wood and tree bark.
3. The opening details of the walls that are windows, the *talataian* and the combination of both windows and the *talataian*.



Fig.11. Detail Wall Materials on Wall of Talang Mamak Tribe's House
Source: Faisal, 2013

Category of Floor Design and Pillars

The houses of the Talang Mamak tribe are houses on stilts, and the pillars used for the foundation of these houses are very important. The pillars are made from wood found locally, with the strong ones chosen for the foundation of the house. The pillars are buried deep into the ground or by using extols. The floor designs, however, is differentiated from the types of materials used, based on its availability and affordability. The criteria differentiate the floor design into the types of pillar, the floor material and the basic details of the building.

The percentages of these criteria can be observed in the following diagram.

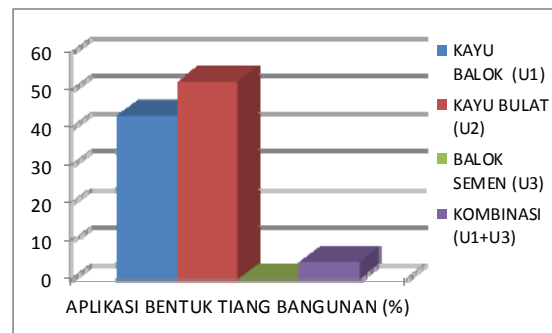


Diagram.7. Percentage of Pillars Form on Talang Mamak Tribe's House
Source: Faisal, 2013

Diagram 7 shows that percentages of various types of pillars used. There are 43.2% of houses that use the *Balok* wood (U1), 52.3% that uses the *Bulat* wood (U2), none uses the cement beam (U3) but 4.5% uses the combination of the *Balok* wood and cement beam (U1+U3). From this, it can be concluded that the types of pillar used are *Balok* wood, *Bulat* wood, cement beam and the combination of *Balok* wood and cement beam.



Fig.12. Pillars Form of Talang Mamak Tribe's House
Source: Faisal, 2013

The percentages of different types of floor materials used can be observed in the following diagram.

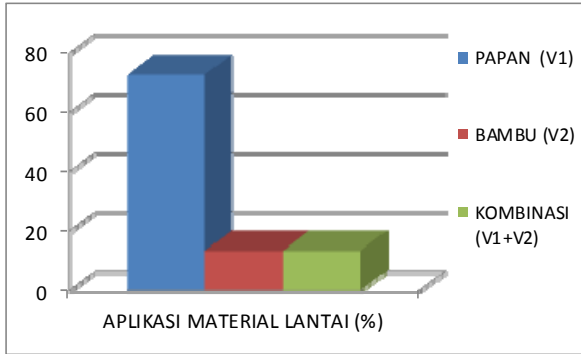


Diagram.8. Percentage of Floor Materials Application on Talang Mamak Tribe's House
Source: Faisal, 2013

Diagram 8 shows that the 72.8% of houses uses wood (V1), 13.6% uses bamboo (V2), and 13.6% use a combination of wood and bamboo (V1+V2). Hence, there are three types of floor materials used in the houses of the Talang Mamak tribe; wood, bamboo and the combination of wood and bamboo.



Fig.13. Variation of Detail Materials Application on Talang Mamak Tribe's House
Source: Faisal, 2013

The following diagram is on the study of the details of the foundation pillars.

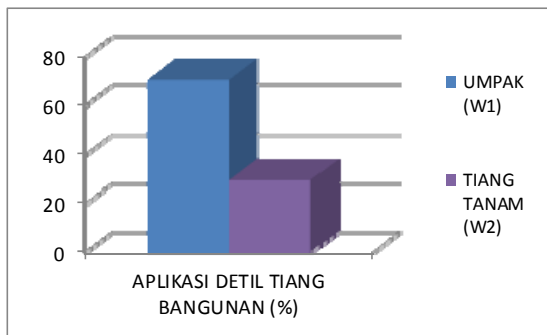


Diagram.9. Percentage of Floor Materials Application on Talang Mamak Tribe's House
Source: Faisal, 2013

Based on Diagram 9, 70.5% of the houses are erected using *umpak* in their foundation pillars (W1) and 29.5% has the foundation pillars buried deep into the ground (W2). Therefore, there are two types of foundations used among the Talang Mamak tribe; the usage of *umpak* and burying of pillars into the ground.



Fig.14. Variation of Detail Pillars Material Application on Talang Mamak Tribe's House
Source: Faisal, 2013

CONCLUSION

The characteristic design of the Talang Mamak tribe house is a simple building on stilts, similar to that of the Austronesian tribe. The similar features include quadrangle-shaped base, stilts, *atap pelana* and a framework structure held together by a construction belt. Other than that, the materials used represent the location of the houses of the Talang Mamak tribe and their environmental preserving lifestyles.

The materials commonly used for roofs were leaves, now replaced with zinc or a combination of both. The materials used for walls are from wood, bamboo and tree bark. They also have windows and openings called the *talataian*. The materials used for pillars used to be wood and stones but now they use cement beams and cement *umpak*.

This study aims to be a measure to preserve and cultivate the knowledge of the Talang Mamak tribe's houses. Since this study was limited by time and distance, further studies should be conducted to gain more knowledge on the architecture of these tribal houses especially on how these houses were built.

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