

Study of The Use of Bamboo as a Construction Material for Accommodation in The Tourism Industry

Nur Farina Maisarah Md Fadzil¹, Nurdalila Saji^{1*}

¹Department of Civil Engineering Technology, Faculty of Engineering Technology, Universiti Tun Hussein Onn Malaysia, 84600 Pagoh, Johor, MALAYSIA

*Corresponding Author Designation

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Abstract: Bamboo has been used as a building material for a long time, most traditional houses in Southeast Asia have used bamboo as a construction material, however, bamboo has its disadvantage and has its own shelf life. This paper is aimed to determine the level of suitability of the use of bamboo as a construction material for accommodation and to examine the comfort for visitors staying at Tadam Hill Resort, Banting, Selangor. This study only focuses on walls, foundations, and floors in accommodation at Tadam Hill Resorts. The data collected from questionnaires which are distributed to 40 respondent which is the visitor who has visited Tadam Hill Resorts. From the data analysis, some of the respondents disagree with the use of bamboo as a construction material for their accommodation. Next, the types of bamboo used by Tadam Hill Resort for accommodation there are Semantan, Semeliang, and Betung bamboo types. Tadam Hill Resorts also maintains the accommodation by painting using shellac and bamboo vinegar. According to the management of Tadam Hill Resorts, the bamboo used can last for about 20 years if there are proper maintenance and care. Thus, the information related to the uses of bamboo and the fact of bamboo need to be exposed to the visitors.

Keywords: Bamboo, Construction Material, Accommodation

1. Introduction

Bamboo has been used as a building material for a long time, most traditional houses in Southeast Asia have used bamboo as a structural material and not a structural material in construction. This is because bamboo grows a lot in tropical rainforests, bamboo became one of the building materials to make traditional houses before the industrial era began.

Malaysia has many tourist attractions, including theme parks, waterfall recreation parks, historical relics, islands, and so on. Each tourist place has its uniqueness, such as, Tadam Hill Resorts uses the concept of bamboo to attract tourist. The concept of bamboo is highlighted by the management of Tadam Hill Resorts to appreciate nature and give uniqueness to visitors. To ensure and preserve the

*Corresponding author: nurdalila@uthm.edu.com

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beauty of nature, Tadam Hill Resorts always cooperates with local natives and at the same time provide employment opportunities for them [1]. Bamboo has many advantages in construction. Bamboo is also strong and can be used as an alternative material for concrete steel and stone as an independent building material. Bamboo can also be easily bent according to the desired shape and it can also be a suitable joint in its construction [2].

However, bamboo not only has many advantages, but it also has its disadvantages. For example, it can be attacked by fungi, insects so that the layers need to be coated [3]. Bamboo is very easy to use and easy to cut without the use of special equipment. Bamboo is a material that does not pollute nature, and bamboo products are being used everywhere and the bamboo industry is now growing in Asia and it is used for as a base, fence, housing, home products, craft raw materials, pulp, paper, board, industry fabrics, fuels, floors, and roofs [4].

A large number of bamboos is found in forestry areas and also widely scattered outside the forest usually farmland, riverbanks, roadside, and rural areas [4]. Figure 1 shows the distribution of six (6) bamboo species according to forest status in Peninsular Malaysia [5].



Figure 1: Distribution of Six (6) Bamboo Species According to Forest Status in Peninsular Malaysia (Forestry Department of Peninsular Malaysia, 2019)

Therefore, the study on the use of bamboo as a construction material for accommodation in this tourism industry is to study the suitability of bamboo use and the comfort of visitors, this study will study the use of bamboo as a floor, foundation, and walls of accommodation for tourists. This study focuses on the comfort and safety of tourists towards the use of bamboo as a construction material for accommodation in Tadam Hill Resorts, Banting, Selangor. To achieve the goals of this study, several objectives have been identified: -

- i. Determine the level of suitability of the use of bamboo as a construction material for accommodation at Tadam Hill Resort, Banting, Selangor.
- ii. Examine the comfort level of visitors at Tadam Hill Resort, Banting, Selangor.

2. Materials and Methods

This study was conducted at Tadam Hills Resort, Banting, Selangor. This location was chosen because Tadam Hills Resort uses bamboo as a construction material for accommodation, it is also a

famous tourist destination. This study was implemented using qualitative methods to collect data to achieve the objectives of the study. The methods used are the questionnaire method, and the interview method.

The questionnaire method used is a closed-form questionnaire, where the questions are structured, and the respondents only choose the determined answers. This question is easy to answer because the answer is already available, and it is also easy to analyze. Next is the interview method made to gather information through oral answers from the interview results. This interview gives a piece of information about the bamboo used.

The selected respondents are visitors who have visited Tadam Hills Resort. According to (Chuan, 2006; Krejcie & Morgan, 1970) states that the table Krejcie & Morgan is commonly using quantitative method to determine sample size [4]. Based on that table for determining sample size for a given population of 45, a sample size of 40 would be picked. A total of 40 visitors who have visited Tadam Hill Resort will answer a set of questionnaires distributed through social media. Besides, the management of Tadam Hill Resorts is also a respondent in the interview method to find out about their use of bamboo, which will be done online.

2.1 Questionnaire Survey

The pilot study is an experimental study where the questions that the researcher has created will be distributed to visitors who have visited Tadam Hill Resort, the data analysis of this pilot study is intended to test the questionnaire questions whether it determines the level of reliability of the questionnaire or not. For this pilot study, a total of 30 respondents were selected, and the data analysis of this pilot study will be collected and examined using SPSS 25.0 system.

Table 1: Value of Cronbach's Alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.871	.889	17

Table 1 shows the value of analytical data for this pilot study is 0.871, whereas according to Ursachi, the reliability value between 0.8 to 0.9 is at a very acceptable level [5]. Indirectly, the questionnaire questions of this study are very acceptable. To achieve the objectives of the study, a questionnaire method was conducted on the study respondents to obtain data. This set of questions has two answer choices, open and Likert Scale, where respondents only need to state their level of agreement on the given question by ticking on their choice.

The questionnaire design is divided into three parts, which are demographics, bamboo as a construction material used at Tadam Hills Resort, and the level of consumer comfort for accommodation made of bamboo.

- i. Section A: Demographic information of respondents.
- ii. Section B: Bamboo as a construction material.
- iii. Section C: Suitability of Bamboo Use and Comfort of Visitors

2.2 Interview

In this interview session, the respondents involved were the management of Tadam Hill Resorts. This interview method is implemented online, where the researcher gives questions to the management and the management provides answers for additional info regarding the use of bamboo used.

3. Results and Discussion

3.1 Questionnaire

To produce the analysis data of this study, the method used is a quantitative method in Statistical Package for the Social Sciences (SPSS Window version 25.0) where it is a method that is appropriate to the study conducted.

Descriptive statistical analysis is a method to analyze data in percentage, frequency and using Measure of central tendency (MCT). Descriptive methods and inferences are used, and all the findings analyzed will be displayed in the form of a table showing the percentage, frequency, mean and standard deviation.

Sections B and C in this questionnaire use the Likert scale method which consists of scales one (1) to scale five (5). Scale one (1) means strongly disagree, scale two (2) disagrees, scale three (3) moderate, scale four (4) is agree, and finally scale five (5) strongly agree. Table 2 shows the question and the answer of the respondents to the questionnaire.

Table 2: Questions and Answer of the Questionnaire

Question	Frequency Level Scale					Average (min)
	1	2	3	4	5	
In your opinion, is the use of bamboo suitable for use as a floor in your accommodation?	1	1	10	15	13	3.95
Do you have problems with contact with bamboo as the floor of your accommodation?	6	3	17	8	6	3.13
In your opinion, is the use of bamboo suitable for use as the basis of your accommodation?	3	4	12	10	11	3.55
While staying at Tadam Hill Resort, do you feel safe with accommodation at Tadam Hill Resort?	0	0	6	22	12	4.15
In your opinion, is the use of bamboo suitable for use as a wall in your accommodation?	3	4	11	13	9	3.53
Do you feel comfortable using bamboo as accommodation?	0	1	12	15	12	3.95
Do you feel comfortable using bamboo as a bed and furniture in the accommodation?	2	2	9	17	10	3.78
In your opinion, is bamboo safe to use for human daily life?	1	6	11	15	7	3.53
In your opinion, is bamboo safe to use for human daily life?	5	4	19	7	5	3.08
Average	2.33	2.78	11.89	13.56	9.44	

The results of the data analysis found in Table 2 above shows that most of the respondents who visited Tadam Hill Resort agreed that they feel safe with accommodation at Tadam Hill Resort. While a total of twelve (12) respondents choose moderate with the appropriate use of bamboo to be used as a

basis for accommodation, this means, some respondents do not agree and moderate with the use of bamboo as a basis for their accommodation.

Next, the use of bamboo as a wall of accommodation at Tadam Hill Resort, there are one (11) respondents moderate, four (4) respondents disagree and three (3) respondents strongly disagree with the use of bamboo as the wall of their accommodation. While a total of thirteen (13) respondents and nine (9) respondents agreed with the use of bamboo as the wall of their accommodation.

As shown in Table 2, some respondents felt comfortable with the use of bamboo as the building material of their accommodation, this is supported by the distribution of respondents in the question "Do you feel comfortable with the use of bamboo as an accommodation?" where a total of fifteen (15) respondents agree and twelve (12) respondents strongly agree with the statement. These respondents not only feel comfortable with the use of bamboo as accommodation, but they are also comfortable with the use of bamboo as furniture available in their accommodation.

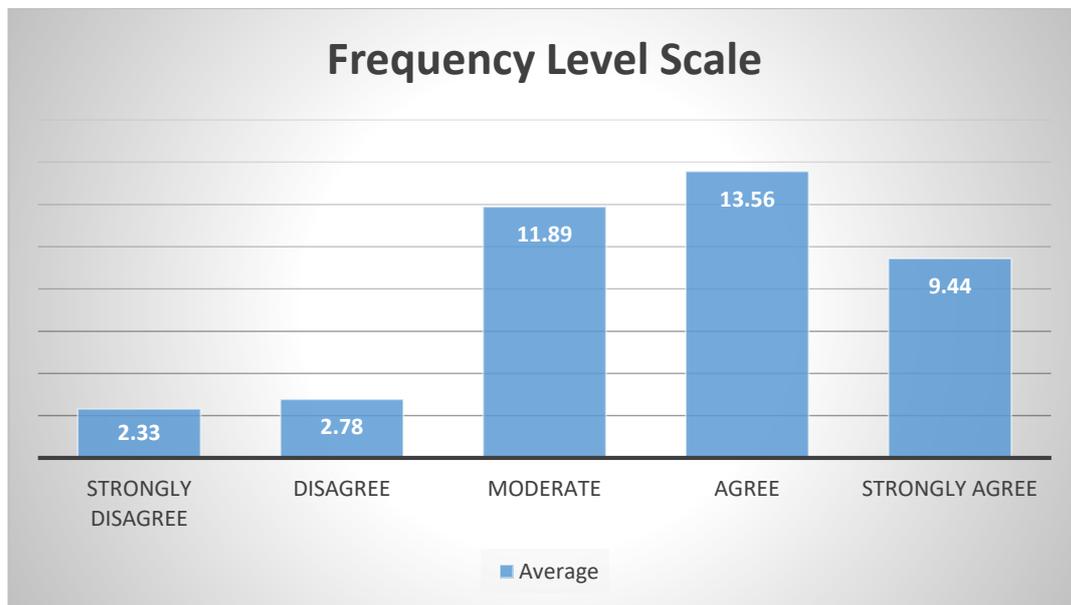


Figure 2: Frequency Level Scale

Meanwhile, there are still respondents who do not agree, as you can see in figure 2 shows the average frequency level scale for the question. There are 13.56 agree and 9.44 strongly agree with all the questions of the questionnaire, but there are 11.89 moderate, 2.78 disagree and 2.33 strongly disagree with all the question as in Table 2 shown. In other words, some of the respondents feel uncomfortable with the use of bamboo as a material construction for their accommodation

3.2 Interview

For the interview section, the researcher has asked questions to the management of Tadam Hill Resorts to get some information regarding this study. The types of bamboo used by Tadam Hill Resort for accommodation there are Semantan, Semeliang, and Betung bamboo types. Tadam Hill Resorts also maintains the accommodation by painting using shellac and bamboo vinegar. According to the management of Tadam Hill Resorts, the bamboo used can last for about 20 years if there are proper maintenance and care.

4. Conclusion

4.1 Objective I: To determine the level of suitability of the use of bamboo as a construction material for accommodation at Tadam Hill Resort, Banting, Selangor.

Overall, the questionnaire of this study has three (3) parts, where the first part is about the demographics of the respondents, the second part is the question related to the suitability of the use of bamboo as a construction material for accommodation that the respondents have occupied. From the results of data analysis that has been discussed in the previous data analysis and discussion, it was found that some respondents agreed with the use of bamboo as a building material for their accommodation, while some respondents disagreed with the use of bamboo as a construction material.

In general, the results of analytical data obtained show that the average of respondents who disagree and strongly disagree is 2.78 and 2.33 feel less comfortable with the use of bamboo as the floor, walls, and foundation of their accommodation. This is due to the lack of exposure to the respondents related to the strength and use of bamboo in the construction industry.

4.2 Objective II: To study the level of comfort of visitors staying at Tadam Hill Resort, Banting, Selangor.

Based on the results of the study that has been obtained in the third part of the questionnaire, namely Part C: The Suitability of Bamboo Use and the Comfort of Visitors. As we see the results of data analysis obtained concerning this section has been discussed in the previous part, where although most respondents feel comfortable and also know that bamboo has its lifespan, there are still respondents who feel uncomfortable and also feel that bamboo is less suitable for use as a building material for accommodation.

The conclusion that can be seen in this problem is, the management of Tadam Hill Resort must provide exposure related to the bamboo used to visitors. Apart from that, to ensure that visitors who visit Tadam Hill Resort feel comfortable and safe, the management should also provide some information regarding the durability and how they overcome the problem of bamboo in their accommodation. This can use the information angle method to give a little knowledge to the visitors.

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