

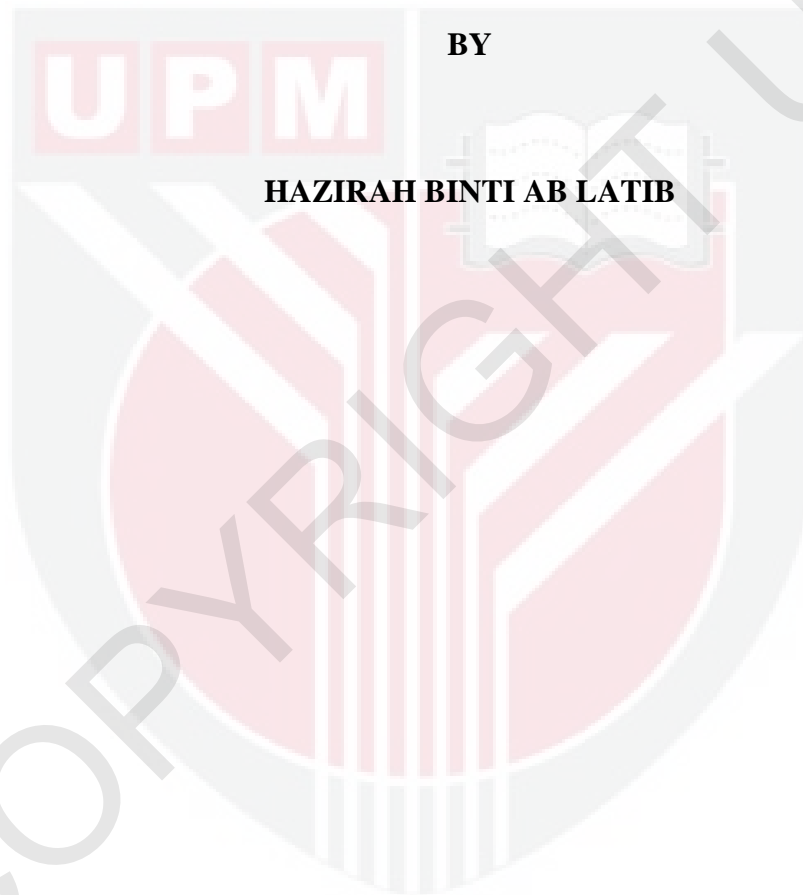


***WOOD UTILIZATION IN THE CONSTRUCTION SECTOR:  
THE ARCHITECTS' PERSPECTIVE***

**HAZIRAH BINTI AB LATIB**

**FH 2017 28**

**WOOD UTILIZATION IN THE CONSTRUCTION SECTOR:  
THE ARCHITECTS' PERSPECTIVE**



**A Project Report Submitted in Partial Fulfillment of the Requirements for the  
Degree of Bachelor of Wood Science Technology in the Faculty of Forestry**

**Universiti Putra Malaysia**

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## DEDICATION

I dedicate my final year project to my family and friends. A special feeling of gratitude to my loving parents, Ab Latib bin Burok and Fatimah binti Rashid and my siblings, Mohd Helmi bin Ab Latib, Hartini binti Ab Latib, Hasni Akmar binti Ab Latib and Muhammad Hairi bin Ab Latib for their fully support faith that I can finish my degree and for the joy they gave to me.

Not forget to all my best friends for their untiring efforts and support for me to complete this study successfully. May Allah SWT will bless you all.

Thank You.

## ABSTRACT

The purpose of this study was to analyze the wood utilization in the construction sector in Klang Valley. The specific objective of the study was to identify perception of architects on wood utilization in the construction sector. In addition, the study also aims to determine the choice of wood commonly used and also to determine the factors influencing architects' for not actively specifying wood for construction purposes in Klang Valley. The study was conducted through the assistance of the Pertubuhan Arkitek Malaysia (PAM) to which survey forms were provided. A total of 25 architects registered in the Klang Valley, volunteered to participate in the study. The study found that there is a general lack of wood use in the construction sector. Most architects who handled projects worth below MYR 1 million did not use wood in their projects. Meanwhile, the architect who handled projects worth more than MYR 1 million used wood as a construction material in their projects. Among the wooden materials widely used in the construction sector are particle board and solid wood such as Kempas (*Koompassia malaccensis*). There were several factors that contributed to the lack of wood use in the Malaysian construction sector. The lack of supply and its inconsistent quality are the major factors. Based on this study, the construction company did not have a problem with the cost of the wood materials, but the availability affected its use as specified by the architects. Construction companies have to find sufficient supply of wood material, if wood is to be used more widely in the construction sector.

## ABSTRAK

Tujuan kajian ini adalah untuk menganalisis penggunaan kayu dalam sektor pembinaan di Lembah Klang. Objektif khusus kajian ini adalah untuk mengenal pasti persepsi arkitek mengenai penggunaan kayu do sektor pembinaan. Di samping itu, kajian ini juga bertujuan untuk menentukan pilihan kayu yang biasa digunakan dan juga untuk menentukan faktor-faktor yang mempengaruhi arkitek yang tidak aktif menggunakan kayu untuk tujuan pembinaan di Lembah Klang. Kajian ini telah dijalankan dengan bantuan daripada Pertubuhan Arkitek Malaysia (PAM) dengan menyediakan borang soal selidik. Seramai 25 arkitek berdaftar di Lembah Klang, menawarkan diri untuk mengambil bahagian dalam kajian ini. Kajian mendapati bahawa projek-projek yang dikendalikan oleh arkitek kekurangan penggunaan kayu dalam pembinaan. Kebanyakan arkitek yang mengendalikan projek bernilai bawah RM 1 juta tidak menggunakan kayu dalam projek mereka. Sementara itu, arkitek yang mengendalikan projek bernilai lebih daripada RM 1 juta menggunakan kayu sebagai bahan pembinaan dalam projek mereka. Antara bahan-bahan kayu digunakan secara meluas dalam sektor pembinaan adalah papan partikel dan kayu pepejal seperti spesies Kempas. Tambahan pula, terdapat beberapa faktor yang menyumbang kepada kekurangan penggunaan kayu. Kekurangan bekalan dan kualiti yang tidak konsisten adalah faktor utama. Berdasarkan kajian ini, syarikat pembinaan itu tidak mempunyai masalah dengan kos menyediakan bekalan kayu-kayan, tetapi ketersediaan yang terjejas penggunaannya sebagaimana yang ditentukan oleh arkitek. Syarikat pembinaan perlu mencari bekalan bahan kayu yang mencukupi jika sumber kayu yang akan digunakan dalam sektor pembinaan.

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I would like to express my sincere gratitude to my parents and siblings. Their love, care, understanding and moral support have been a source of inspiration to me. Last but not least, I would like to express my deepest appreciation to all my friends for their supports and ideas.

## APPROVAL SHEET

Name of Candidate : Hazirah binti Ab Latib

Title of Thesis :Wood Utilization in the Construction Sector: the Architects'  
Perspectives

I certify that this research report entitled '**WOOD UTILIZATION IN THE CONSTRUCTION SECTOR: THE ARCHITECTS' PERSPECTIVES**' has been examined and approved as a partial fulfilment of the requirements for the degree of Bachelor of Wood Science Technology in the Faculty of Forestry, Universiti Putra Malaysia.

---

Prof. Dr. Jegatheswaran Ratnasingam,

Faculty of Forestry,

Universiti Putra Malaysia.

(Supervisor)

---

Prof. Dr. Mohamed Zakaria Hussin,

Dean,

Faculty of Forestry,

Universiti Putra Malaysia.

Date:

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## CHAPTER 1

### INTRODUCTION

#### 1.1 The Malaysian Construction Industry

Malaysia is actively working towards achieving a high-income status by 2020. This involves intensive transformation of its economic structure. The government has outlined an economic road map to transform the country in order to be recognized as a developed nation. Since independence, the Malaysian economy has observed plans with five-year strategic driving force. The strategic trusts are in line with the goal to become a high-income nation by 2020. Looking towards the 2020 aim, the challenge is to sustain the impetus of a robust maturation. Specifically, this requires an average growth of 6.0 % in GDP per annum during the Tenth Plan Period. To achieve this objective, the economic sphere must play significant roles. The construction sector is active and features prominently in terms of policy conceptualization and implementations. A comparison of the size of the construction industry with other countries suggests that its contribution has been consistent and stable (Abdul Aziz, 2015). The status of construction industry in Malaysia, are show in the Figure 1.1.

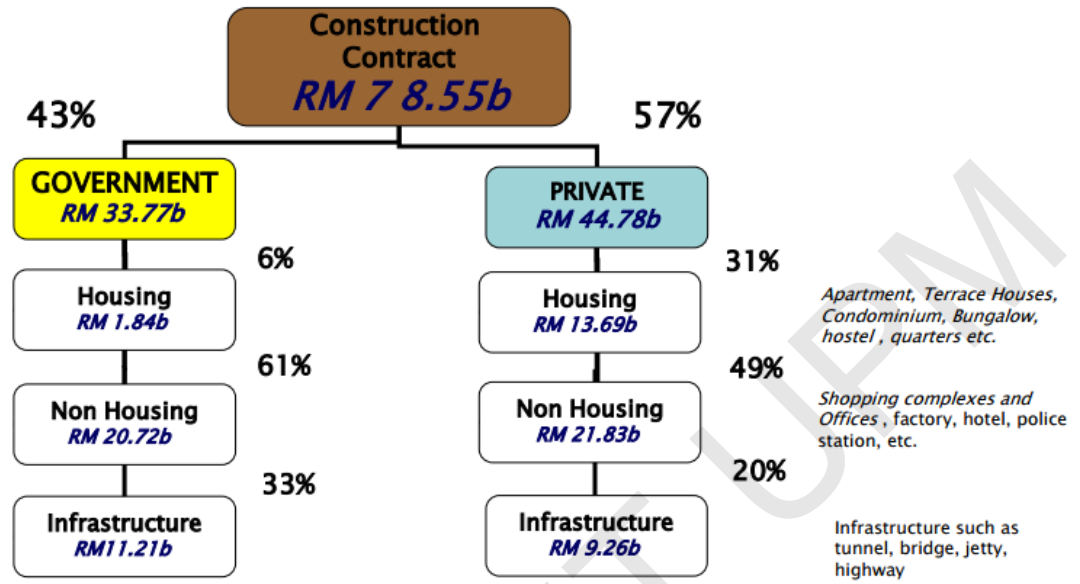


Figure 1.1: Status of the Construction Industry in Malaysia

Source: CIDB, June 2009

## 1.2 Timber Use Practices in the Malaysian Construction Industry

The timber industry in Malaysia caters timber products not only for the domestic but also for the international markets. Despite being an important market outlet for timber products, most domestic markets including Malaysia's, generally receive less attention as they are almost always overshadowed by exports (Bourke, 1991). In 2008, for example, domestic consumption of primary timber products and furniture in Malaysia was worth about RM7.6 billion, while export of timber and timber products was about RM22.5 billion (MPIC, 2009). However, the scenario in Malaysia was expected to change with the launch of the National Timber Industry Plan (NATIP) in 2009, which recognized the importance of the domestic timber market. NATIP calls for promoting and encouraging the use of timber products in the domestic market to sustain

the growth of the country's timber industry (MPIC, 2009). The plan targets the construction industry as it has been the largest consumer of sawn timber, plywood and other wood based panels in the country. Even though Malaysia is a timber-rich country, the use of timber products in the construction industry is almost negligible (Wong, 2008). Jumaat et al. (2006b) lamented that the construction industry in Malaysia is not very keen in using wood material. Various reasons such as poor and inconsistent quality, association with low social status and fire performance, as well as high and fluctuating cost of the material have been cited for the construction industry's disinterest in using timber products (Tan et al., 2005; Ismail et al., 2008). Similarly, the lack of consumer awareness on the availability of Malaysian timber species and products in the local market has also been cited for the continued use of imported timber or alternative materials such as plastic in the building and housing sectors (MPIC, 2009). The diminishing number of timber craftsmen was also another factor for the use of concrete and masonry materials for residential buildings in rural communities in Malaysia (Ismail et al., 2008). The industry is also increasingly using other alternative materials such as bricks and concrete (Nor Haniza et al., 2007; Fujita et al., 2009; Abu Hassan et al., 2011). In 2008, for instance, timber products constitute only 8% of the total materials used by the Malaysian construction industry, compared to 23% each for iron and steel, and cement and concrete (SEASIS, 2008). There is, however, a general lack of detailed studies on the use of timber products not only in the Malaysian construction industry but also in other major timber product consuming sectors. A study was, thus, conducted to provide information on the use of timber products by the Malaysian construction industry, especially in the residential building sector as it is one of the major development projects undertaken by the construction industry. In more specific, the

study aimed to identify the types and to estimate the amount of timber products used in the construction and those installed in the completed single-family residential building units. In 2011, about 28% of the total 5,555 projects awarded to the construction Timber Use Practices in Malaysia's Construction Industry were for residential building construction (CIDB, undated). Therefore, this study focused on the use of timber products in the construction of single-family residential units by building construction firms; hence, it did not include units constructed by individual house owners. Single-family residential units include detached, semidetached and terraced houses, in which each unit is separated by a ground-to roof wall and where no other units are constructed above or below it. During the third quarter of 2011, about 63% of the 4.49 million residential units constructed in Malaysia were single-family residential units (NAPIC, 2011).

### **1.3 Problem Statement**

Malaysia is a major tropical timber producer in the world besides Indonesia, Thailand and Burma. In Malaysia, the level of consumption of forest products as construction structures is still low. Wood is associated with the furniture industry and when used in the construction of wooden structure, it is deemed expensive construction costs, durability problems, substandard, low social status and unsafe. The use of laminated wood structures and laminated board is one of the ways to solve the problem. Although not yet widely used in Malaysia, it can provide a choice to the designer to meet the requirements of the design of a structure. In Malaysia, most construction wood structure still using sawn timber. Wood production is increasingly limited and to get a

large supply of wood is also increasingly difficult to obtain due to the lack of forest resources. In the construction of the structure, sometimes the design required by designers needs the architects approval.

#### **1.4 Objectives**

The main objective of this study was to analyze the wood utilization in the construction sector in Klang Valley. The specific objectives for this study were:

- i. to identify perception of architects on wood utilization
- ii. to determine the choice of wood used
- iii. to determine the factors influencing architects' for not actively specifying wood for construction purposes in Klang Valley

#### **1.5 Scope and Limitations**

To overcome the limited study period besides achieving the objectives of the research, the writing of this project is limited by the scope of:

- i. limited respondents, and
- ii. focused in Klang Valley



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