



**DEPARTMENT OF BUILDING
UNIVERSITI TEKNOLOGI MARA
(PERAK)**

**THE CONSTRUCTION METHOD OF ROOF AT PANJI
KOTA BHARU KELANTAN**

**Prepared by:
MUHAMMAD NAIM BIN ROSALY
2016458516**

DEPARTMENT OF BUILDING
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

DECEMBER 2018

It is recommended that the report of this practical training provided

By

MUHAMMAD NAIM BIN ROSALY

2016458516

Entitled

Accepted in partial fulfilment of requirement has for obtaining Diploma in Building.

Report Supervisor

:

Pn. Azira Bt Ibrahim

Practical Training Coordinator

:

En. Muhammad Naim Bin Mahyuddin

Program Coordinator

:

Dr. Dzulkarnaen Bin Ismail

DEPARTMENT OF BUILDING
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING
UNIVERSITI TEKNOLOGI MARA
(PERAK)

DECEMBER 2018

STUDENT DECLARATION

I hereby declare that this report is my own work, except for extract and summaries for which the original references stated herein, prepared during a practical training session that I underwent at MahligaiGading Development for duration of 14 weeks starting from 03 September 2018 and ended 07 December 2018. It is submitted as one of the prerequisite requirements of DBG 307 and accepted as a partial fulfilment of the requirements for obtaining the Diploma in Building.

Name Muhammad Naim bin Rosaly

Uitm ID No : 2016458516

ACKNOWLEDGEMENTS

Assalamualaikum,

Firstly, the internship opportunity that I had with Mahligai Gading Development was a great chance for me to learn and for my experience work with Construction Company. Therefore I consider myself very lucky individual because this company take me as an intern student here. I am so grateful for having chance to meet so many people that have their own experience in construction field.

I express my deepness thanks to my employer, Che Zaharuddin bin Che Hussin because take me as a practical student in their company.

I also want to thanks to my supervisor Tuan Amirul bin Tuan Nasir for helping and for supervise me during my internship at my Mahligai Gading Development. Also thanks to another staff Encik Mohd Farith and Encik Nik Muhammad Afif Adli for every single things that they have help me in this company.

I also would like to thank to my team for helping me in order to finish my report. Also thanks to Puan Azira binti Ibrahim as my supervising lecture, that always supervise me and my teammates during my practical training.

Lastly, my special to my parent and my classmate because help me give their ideas and moral support during my internship.

Thank you.

ABSTRACT

Roof installation is the important works in any construction work. The main topic that will discuss is related to a bungalow house based on project, *Cadangan Membina dan Meyiapkan 1 unit rumah kediaman (batu) 1 tingkat di atas*. This report will describe on type of roof that been use and also equipment that use to install the roof. In order to make this report perfect, this report has made some observation and interview with the person who involved in construction site. As a conclusion this report also provides a few drawing and catalogue of roof according the specification that can avoid house collapsed.

TABLE OF CONTENTS

Acknowledgement		i
Abstract		ii
Contents		iii
List of Figures		iv
List of Photos		v
CHAPTER 1.0	INTRODUCTION	
1.1	Background and Scope of Study	1
1.2	Objective	2
1.3	Method of study	2
CHAPTER 2.0	COMPANY BACKGROUND	
2.1	Introduction of Company	3
2.2	Company Profile	4
2.3	Organization Chart	6
2.4	List of Project	
2.4.1	Completed Projects	7
2.4.2	Project in Progress	9
CHAPTER 3.0	CASE STUDY	
3.0	Introduction to Case Study	10
3.1	Installation method of roof	12
3.2	Problem and Solution installing roof trusses	15
CHAPTER 4.0	CONCLUSION	
4.1	Conclusion	18
REFERENCES		19

LIST OF FIGURE

Photo 2.3	Organization Chart Mahligai Gading	6
Photo 3.1	Flow Chart of construction method roof	11

LIST OF PHOTOS

Photo 3.1	Marking trusses before install rafter	12
Photo 3.2	Install the rafter	12
Photo 3.3	Determine the roof angle and shape	13
Photo 3.4	Installation roof tiles	14

CHAPTER 1

1.0 INTRODUCTION

1.1 Background and scope of study

A roof is a part of building envelope. Its cover on the uppermost part of the building or shelter provides protection from bad weather and animals.

The main function is to enclose the space and to protect the same from the effect of weather element such as rain, winter, sun and heat. A good roof is just as essential as a safe roof.

To the main function efficiently requirement in its design and construction. There are many types of roof that been used in construction industry. For the example is gable roof, hip roof, mansard roof, flat roof, butterfly roof and etc.

Every each of roof has their own function and also their own pro and cons. The good of choosing type of roof will help to prevent any disturbance happen to every house.

Roof work is quite difficult because it is at the top of building so it needs more concentration to avoid accident at site . Usually the work of roof require more site workers to facilitate and speed up work

1.2 Objectives

- i) To determine the end to end procedure of installation roof trusses
- ii) To analyze the problem occurred during installing the roof trusses and the solution

1.3 Method of study

This study is arranged in a systematic sequence to ensure good quality of the study and its objectives can be achieved.

1) Observation

This observation method is done during practical training directly by site visit. The information collected based on what happen at site construction guided by site supervisor. The technology as camera and cell phone was used to record a Important information such as progressing of construction, equipment and machinerics that used while construction.

2) Interview methods

Other methods that can be used to collect data for this report are by interview. Interview was conducted to get more information about this project and also interview with someone who have experience in this field and involved for this project such as interviewing engineer, technical assistant, contractor, inspector of work and project manager.

3) Internet

Internet also used as a secondary source to obtain information about all type of roof. There are several websites that have been used to get more information on how to install and construct the roof

CHAPTER 2.0

COMPANY BACKGROUND

2.1 INTRODUCTION OF COMPANY

Mahligai Gading Development establish on 5 February 2005 with registration number KT0197386-P. This company is located in the middle of town Kubang Kerian Kelantan. The owner of the company is Encik Zaharuddin bin Che Husin and also as a executive director of Mahligai Gading Development.

This company is very popular in Kelantan because they have provided the best service to the customer. This company proficient in doing housing development and properties, supplier of construction materials and estate management work. Since 2005 this company has been preparing too many construction of house privately own.

There are three principle of leadership which is discipline; encouragement and persistence succeed to increase the company economy. In this company has a own strategies to expanding the company economy is with involved the company with more housing project and commercial and marketing work.

2.2 COMPANY PROFILE

COMPANY NAME	MAHLIGAI GADING DEVELOPMENT
TYPE OF BUSINESS	<ul style="list-style-type: none"> • CONTRACTOR • HOUSING DEVELOPMENT • INFRA • PRIVATE OWN ENGEENERING WORKS • GOVERNMENT PROJECT
ESTABLISHED	5 FEBRUARY 2005
FIRM REGISTRATION NO	KT0197386-p
CIDB REGISTRATION NO	0120070131-KN112189
COMPANY ADDRESS	NO PT 1355A, TINGKAT 1 WISMA CHE MINAH JALAN RAJA PEREMPUAN ZAINAB II, 16150 KUBANG KERIAN, KOTA BHARU KELANTAN
TEL NO	
OFFICE NUMBER	
EMAIL	CHEDINMGD@YAHOO.COM MAHLIGAIGADINGDEVELOPMENT@GMAIL.COM
STARTING CAPITAL	RM500000
AUTHORISED CAPITAL	RM500000
PAID UP CAPITAL	RM500000
DIRECTOR	CHE ZAHARUDDIN BIN CHE HUSIN

2.2.1 OBJECTIVE OF THE COMPANY

- Creating opportunities for all citizens to enjoy the convenience and ownership of own comfort house
- To make sure the low income citizen can enjoy the home ownership that suits their economical budget.
- To reduce the existed and new squatter area.
- Restructuring society through the distribution of housing.

2.2.2 VISION AND MISSION OF THE COMPANY

- Vision Mahligai Gading Developement

i. To create opportunities for all citizens to enjoy the convenience and ownership of own comfort house

- Mission Mahligai Gading Developement

i. Restructuring society through the distribution of housing to make sure the low income citizen can enjoy the home ownership that suits their economical budget.

2.3 Organisation Chart

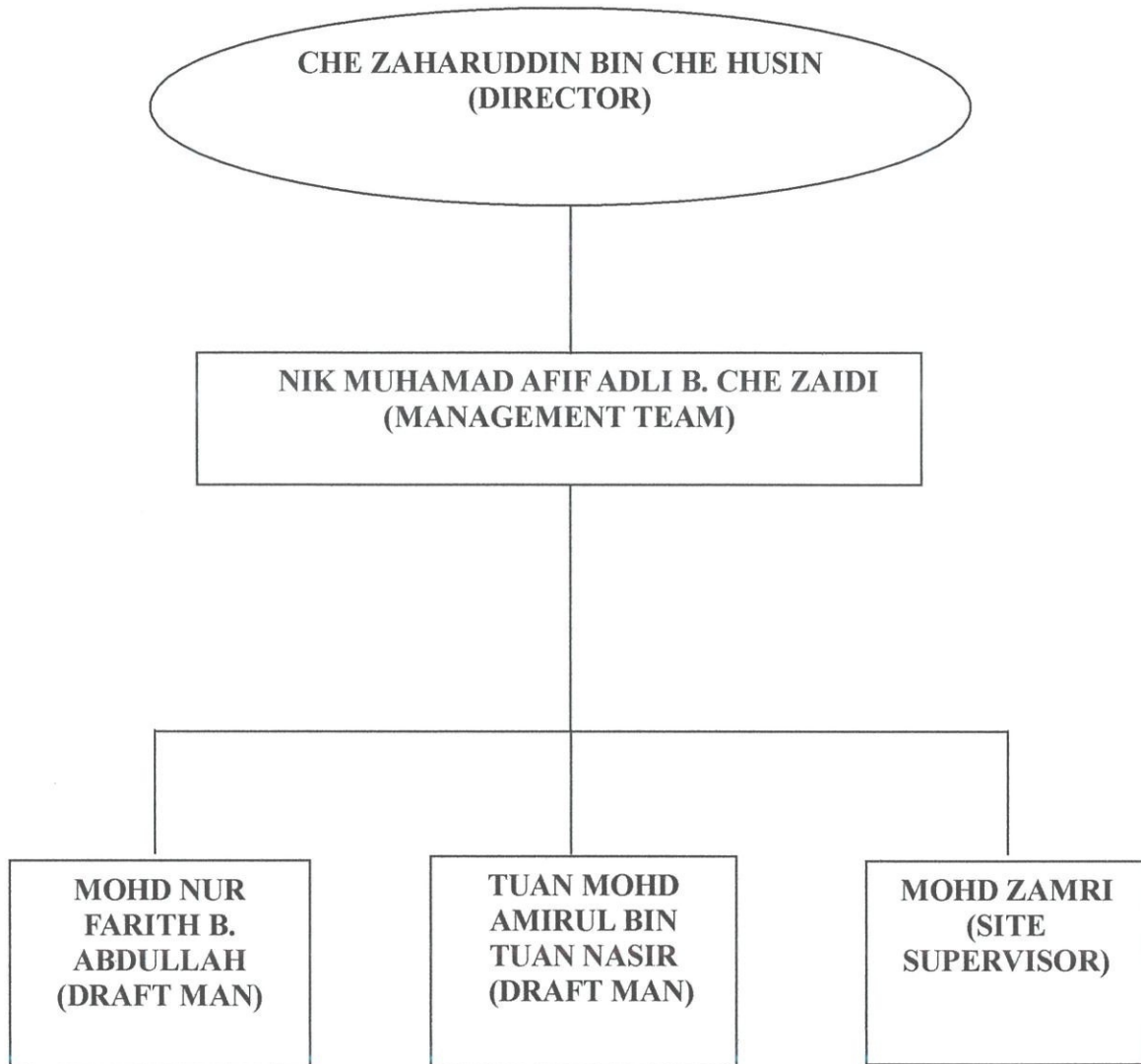


Figure 2.3 Organisation chart Mahligai Gading

2.4.1 COMPLETED PROJECT

NO	PROJECT NAME	LOCATION	COST	DATE (START)	DATE (FINISH)
1	1 UNIT BUNGALOW SETINGKAT (2160KP)	PT1247 MUKIM PAUH 9 BACHOK KELANTAN	RM27000 0	25.08.2014	22.06.2015
2	1 UNIT BUNGALOW SETINGKAT (2160 KP)	PT1248 MUKIM PAUH 9 BACHOK KELANTAN	RM27000 0	25.06.2014	10.05.2015
3	1 UNIT SEMI D SETINGKAT (1440KP)	PT1249 MUKIM PAUH 9 BACHOK KELANTAN	RM18000 0	21.06.2014	02.04.2015
4	1 UNIT SEMI D SETINGKAT (2160KP)	PT1250 MUKIM PAUH 9 BACHOK KELANTAN	RM27000 0	17.07.2014	10.6.2015
5	1 UNIT RUMAH BUNGALOW (2160KP)	PT1251 MUKIM PAUH 9 BACHOK KELANTAN	RM27000 0	17.07.2015	10.6.2016

6	SATU RUMAH BUNGALOW SETINGKAT (2160KP)	PT1252 MUKIM PAUH 9 BACHOK KELANTAN	RM27000 0	10.08.2015	12.07.2016
7	1 UNIT SEMI D (1040 KP)	LOT 736 MUKIM PAUH 9 BACHOK KELANTAN	RM13000 0	21.12.2015	11.11.2016
8	1 UNIT SEMI D (1040KP)	LOT 737 MUKIM PAUH 9 BACHOK KELANTAN	RM13000 0	09.06.2015	08.05.2016
9	1 UNIT BUNGALOW (1920KP)	LOT738 MUKIM PAUH 9 BACHOK KELANTAN	RM24000 0	25.11.2015	22.10.2016
10	1 UNIT BUNGALOW (1440KP)	LOT739 MUKIM PAUH9 BACHOK KELANTAN	RM18000 0	05.10.2015	02.10.2016
11	1 UNIT BUNGALOW (1440KP)	LOT740 MUKIM PAUH 9 BACHOK KELANTAN	RM18000 0	03.10.2015	11.09.2016
12	1 UNIT BUNGALOW (1440KP)	LOT741 MUKIM PAUH 9 BACHOK KELANTAN	RM18000 0	14.09.2015	17.10.2016
13	1 UNIT SEMI D (1440KP)	LOT742 MUKIM PAUH 9 BACHOK KELANTAN	RM13000 0	22.07.2015	01.08.2016
14	1 UNIT SEMI D (1440KP)	LOT743 MUKIM PAUH 9 BACHOK KELANTAN	RM13000 0	09.08.2015	10.09.2016
15	1 UNIT BUNGALOW (2560KP)	LOT PT952 MUKIM PAUH 9 BACHOK KELANTAN	RM32000 0	3.11.2015	04.12.2016
16	1 UNIT BUNGALOW (2320KP)	LOT953 MUKIM PAUH 9 BACHOK KELANTAN	RM29000 0	14.12.2015	12.12.2016

2.4.2 PROJECT IN PROGRESS

NO	PROJECT NAME	LOCATION	COSTS	DATE (START)	DATE (FINISH)
1	1 UNIT BUNGALOW (80 % IN PROGRESS)	LOT 4394 PAUH 9 BACHOK KELANTAN	RM280 000	15.01.2018	24.11.2019
2	1 UNIT BUNGALOW (55% IN PROGRESS)	LOT 1952 MUKIM KARANG KOTA BHARU	RM28000 0	20.03.2018	14.01.2020
3	3 UNIT BUNGALOW (80% IN PROGRESS)	LOT 1581-1583 BERIS KUBOR BESAR BACHOK	RM90000 0	15.02.2018	18.12.2018
4	2 UNIT BUNGALOW (45% IN PROGRESS)	LOT 1576 BERIS LALANG BACHOK	RM60000 0	14.04.2018	12.01.2020
5	1 UNIT BUNGALOW DOUBLESTORY HOUSE (45% IN PROGRESS)	LOT 3895 KOTA JEMBAL, BACHOK	RM35000 0	14.04.2018	12.01.2020
6	1 UNIT BUNGALOW HOUSE ONE AND A HALF	LOT PT357 GAJAH MATI BACHOK	RM35000 0	01.03.2018	11.02.2020
7	1 UNIT BUNGALOW	LOT889 MERANTI PASIR	RM34000 0	11.02.2017	10.12.2018
8	1 UNIT BUNGALOW DOUBLE STORY HOUSE	LOT 1173 KUBANG KERIAN	RM70000 0	21.01.2018	21.01.2018
9	1 UNIT BUNGALOW	LOT PT 13118 KUALA BALAH JELI	RM30000 0	30.12.2017	03.11.2018

CHAPTER 3.0 CASE STUDY

INTRODUCTION OF PROJECT

The project was carried out in the practical training was Proposal to complete 1 unit of 1 storey residential (stone). Total of construction project cost was three hundred thousand in ringgit Malaysia (RM300,000). The duration of the starting from August 2017 and expected completion date is on December 2018.

A case study regarding this project, the focus will be on the installation of roof as suitable topic due to process of construction is not very complex and heavy and the problem occurred on site. The construction of installation of roofing is the only works easy to conduct and manage due to the duration of practical.

To install the roof at every each houses is start with set up the ground. Once the ground is set up exists shingle are removed and the roof deck is cleaned of nails, staples and any other fasteners.

Second the progress is install ice and water barrier known as "leak barrier". The roof also has deck protection, which is commonly paper on synthetic underlayment. For the roof, we start at the bottom and overlap to the flow down and off at the roof.

Next step, install the starter strip, its start with shingling. Two main type of asphalt shingle are known as "three tabs" and architectural.

For this project, the pitch roof type is used and the construction is according to the drawing.

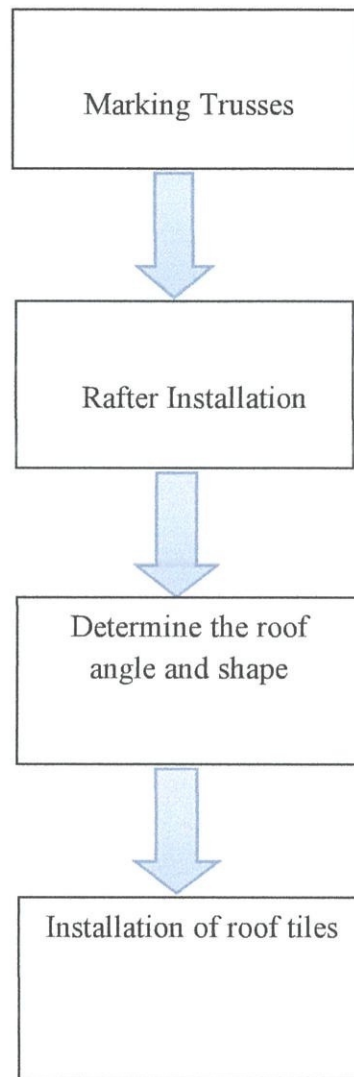


Figure 3.1 : Flow charts of construction method roof

3.1 Installation of roof

Marking trusses



Photo 3.1: Marking trusses

Marking the trusses correctly based on the requirement drawing before the construction of roof start using marker and measuring tape by the unskilled labour.

Rafter installation



Photo 3.2: Install the rafter

Install the rafter and fixed on top of the concrete beam based on requirement position of the length of the house. This length can refer the detail of the drawing and install by the site worker and be supervised by the contractor or site supervisor. The dimension of rafter is 125mm X 47mm and the dimension batten 19mm X 50mm.

Determine the roof angle and shape



Photo 3.3: Determine the roof angle and shape

Determine the roof angle accurately and based on the drawing. The angle of the pitch roof construct is 30 degree. The shape of the pitch roof is horizontal and vertical. The trusses is installed form the pitch roof shape by site workers. The rafter is layered on the trusses installed. From the front elevation the ceiling level from the top of beam 5 feets.

Installation of roof tiles



Photo 3.4: Installation of roof tiles

Install the tiles onto the trusses. The type of the tile used is from premier material from clay. Inspection has been doone by site supervisor.

3.2 Problem and solution installing roof trusses on site.

3.2.1 Weather Factor

Problem : Kelantan is located in the north eastern corner of Malaysia which is the north is monsoon brings heavy rain . The site is located at area that is not safe for site workers install the roof trusses during bad weather because installation work of roof trusses is exposed to external work and working at height . As a result, delays are common during rainy season and can caused costly injuries and fatal.

Solution : Avoid from installing roof trusses whenever in rainy season.

3.2.2 Misalignment roof trusses

Problem : The site worker missaligned the two trusses looks exactly the same. The installation process will be delayed because of missaligned the trusses.

Solution: Keep the trusses aligned to ensure the position of the trusses correct with the specific direction.

3.2.3 Improper Storage

Problem: The roof tiles broken due to improper storage of the materials and often result in damage materials.

Solution: Storage properly at the site

3.3 Type of roof

3.3.1 Pitch roof

The roof that slopes down words is called pitched roof. Basically there are two parts at an angle from a central ridge, but some how is one part at an angle from one edge to another. There are several types of pitches roof, for an example:

i) Mono pitch roof

One slope from one side of a building to another. It commonly used in similar fashion nowadays. In domestic construction it intallas a series of rafter that fixes to wall and the rafter feet are nailed to a wall plate.

ii) Couple roof

Couple roof is constructed which comprised two lenght of rafters leaning against each other and its being fixed on the top where the joint meet. The rafter is lay on the wall plate.

iii) Trusses rafter

In modern houses construction the most common form of trussed rafter (W) truss. This trussed rafter is capable of span up 12. The timber is butt joined and fixed using punched meetal connector plate. A timber wall plate is still used for a fixing point for the rafteer. In additional,the purpose of the bracing is to bird the whole structure is to providing protection from collapse.

3.3.2 ELEMENT FOR ROOFING

Roof tiles are designed mainly to keep out from rain and made from terracotta or slate. Modern material such as concrete and plastic and also used some clay tiles to have a waterproof glaze.

Type of roofing: ceramic interlocking tiles

Size:

420mm (L) x 330 mm (W)

16.5 inches x 13 inches (W)

Rafter:

Based on the length of the house. This length can refer the detail of the drawing.

Insulation:

The heat gain into building need to be insulated in house to make sure heat loss from the building. To overcome the excessive heat in the house the insulation need to be installed. The heat is escape through the roof. For pitched roof there are two types of insulation that can ne installed . For Example:

i) Warm roof

The insulation is installed immediately that is located above the ceiling on top the house. So that the loft will also keep warm.

ii) Cold roof

The insulation is installed immediately above the ceiling on the top of house. In this case the loft space is not heated. It only insulted between and over joist above this ceiling.

CHAPTER 4

CONCLUSION

This report is about the construction method of roof. which located at Panji Kota Bharu Kelantan. The objective of this project is Explain various type of roof and describe the construction activities in installing the roof

Based on observation from this project there are few things that get found that we consider as problems and need to solve at the site. During this project were carried out, the problems measure the length of the rafter incorrectly and to overcome this problems is we need to cut another wood again with the correct dimension and length.

Next , what can be conclude from this , overall review is before start any construction site , have to make a site and soil investigation at the site, to make sure there no any problem that stuck at the site.

Site supervisor is the main important person that carried all the responsible to conduct and handle all the problems and solution at the site. For example for the problem which is measure the length of the rafter incorrectly . The person who in charge will suggest the best solution to overcome the problem.

As a conclusion, roofing is very important in any construction site and to build every house and building. Roofing also is a basic in method on to construct a houses and building. The function of roofing is for protection from animals and weather, notably rain or snow but also heat, wind and sunlight. The poor of installation of roof can cause danger or hazard in the event of ripped off wires.

REFERENCES

Web Site:

Timber trusses (2018). Available from: <http://www.hunker.com>

Roof Structure (2018). Available from: <http://www.wikipedia/roofstructure.org>

Installation roof (2018). Available from <http://www.oreilly.com/method.com>