



**DEPARTMENT OF BUILDING SURVEYING  
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING  
UNIVERSITI TEKNOLOGI MARA  
CAWANGAN PERAK  
KAMPUS SERI ISKANDAR**

**FORMWORK REPORT**

**AHMAD NOR HAFFIZ B ABD RAHMAN  
(2014261662)  
DIPLOMA IN BUILDING SURVEYING**

**PRACTICAL TRAINING REPORT  
DECEMBER 2016 – MARCH 2017**

-----

## **TABLE OF CONTENT**

	<b>TITLE</b>	<b>PAGES</b>
	<b>TABLE OF CONTENT</b>	<b>i</b>
	<b>LIST OF PICTURES</b>	<b>ii</b>
	<b>LIST OF FIGURES</b>	<b>iii</b>
	<b>ACKNOWLEDGMENT</b>	<b>iv</b>
	<b>INTRODUCTION</b>	<b>1-8</b>
<b>1</b>	<b>LITERATURE REVIEW</b>	<b>9-17</b>
<b>2</b>	<b>CASE STUDY</b>	<b>18-32</b>
<b>3</b>	<b>PROBLEM AND RECOMMENDATION</b>	<b>33</b>
<b>4</b>	<b>CONCLUSION</b>	<b>34</b>
<b>5</b>	<b>REFERENCE</b>	<b>35</b>
<b>6</b>	<b>APPENDIX</b>	<b>36-39</b>

## **LIST OF PICTURE**

**NO.      TITLE  
PAGES**

<b>1</b>	<b>Figure Shows 2.0</b>	<b>18</b>
<b>2</b>	<b>Figure Shows 2.1</b>	<b>19</b>
<b>3</b>	<b>Figure Shows 2.2</b>	<b>20</b>
<b>4</b>	<b>Figure 2.2.1 Shows The Ground Beam Process</b>	<b>21</b>
<b>5</b>	<b>Figure 2.2.2 Shows The Roof Beam Process</b>	<b>22</b>
<b>6</b>	<b>Figure 2.2.3 Shows The Ground Floor Columns</b>	<b>23</b>
<b>7</b>	<b>Figure 2.2.4 Shows The Pad Footing Process</b>	<b>24</b>
<b>8</b>	<b>Figure 2.3 Shows The Example of Workers</b>	<b>25</b>
<b>9</b>	<b>Figure 2.4.1</b>	<b>26</b>
<b>10</b>	<b>Figure Show 2.5: the Recycle of the Formwork</b>	<b>27</b>
<b>11</b>	<b>Figure Show 2.7</b>	<b>29</b>
<b>12</b>	<b>Figure 2.7.1</b>	<b>30</b>
<b>13</b>	<b>Figure Show 2.8</b>	<b>31</b>

## **LIST OF TABLES**

<b>NO.</b>	<b>TITLE</b>	<b>PAGES</b>
1	Table shows 1.6	14
2	1.7 Table: Period of Removal of Formwork	17
3	2.9 Table: period of removal formwork	32
4	3.0 Table: problem and recommendation	33

## **ACKNOWLEDGMENT**

Assalamualaikum,

First of all, we are so grateful and we want to say Alhamdulillah and thanks to Allah s.w.t as I was able to complete this task. I also had use full of strength and commitment to gather all the information at the My Practical Place and the source by surfing in internet. It is our pleasure to spend time the few days to get information completed to start report and I was very satisfied with the information collected.

I would like to express our appreciation to our subject Practical Training . lecturer, En Irwan Mohd Ali gave us the guideline and advice in completing this report.

Last but not least, I would like to extend our deepest appreciation to those who involved directly and indirectly guided in writing this report.

Thank you.

## COMPANY BACKGROUND



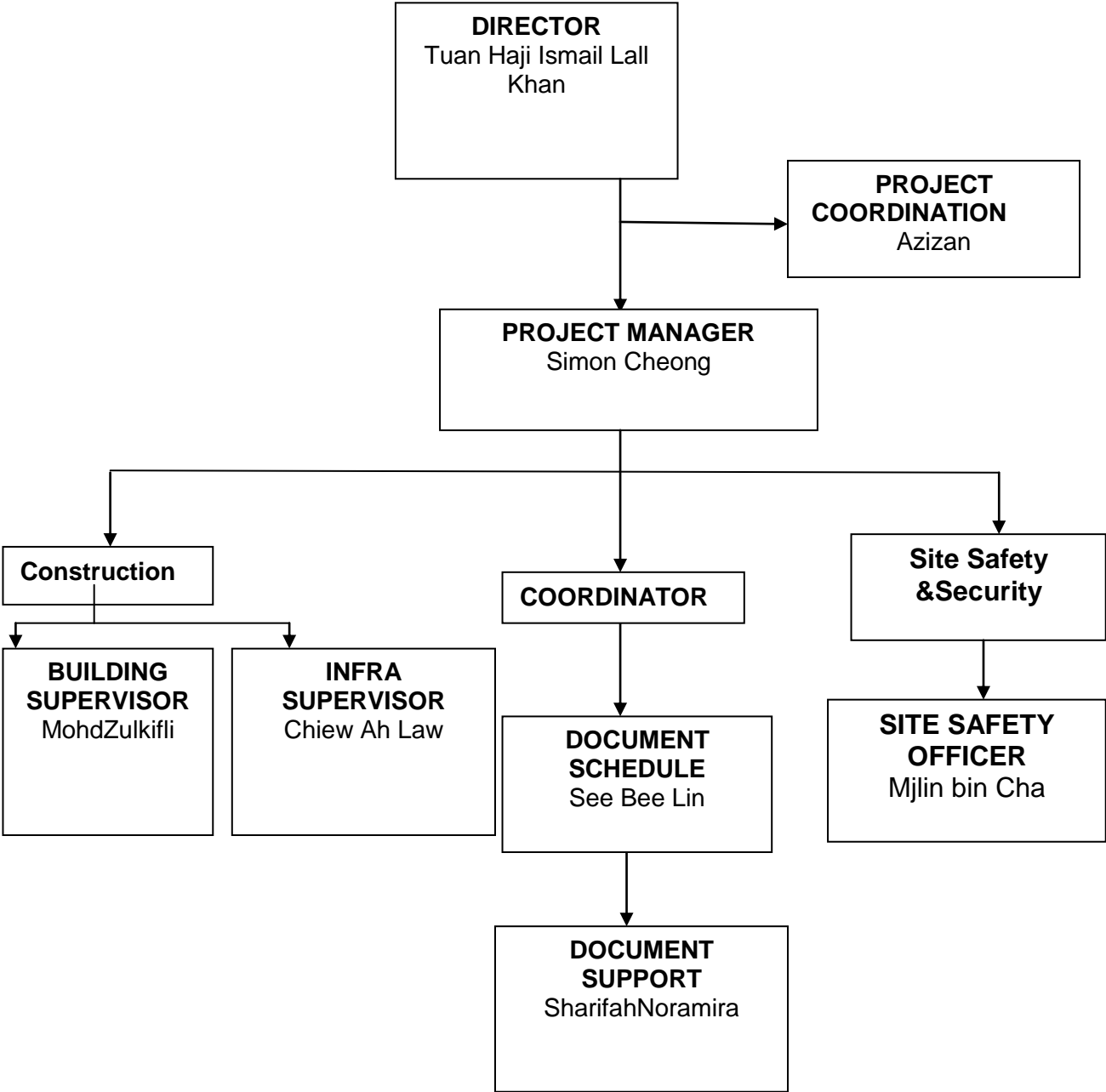
<b>NAME</b>	ArahSemangatSdnBhd
<b>ADDRESS</b>	No7, Villa Seri TunkuAnak Bukit, LebuhrayaDarulAman 06550, AlorSetar , Kedah
<b>NO TEL</b>	04- 7304692
<b>SITE PROJECT</b>	Residential Project at PayaKamuntingJitra
<b>AGE</b>	13 Years
<b>PROJECT MANAGER</b>	Simon Cheong
<b>DEVELOPER</b>	MK Mutiara SDN BHD Tingkat 1 Perniagaan Sultan Abdul Hamid Persiaran Sultan Abdul Hamid 3 05050 AlorSetar, Kedah 047711085
<b>EMAIL</b>	<a href="mailto:arahsemangat@ymail.com">arahsemangat@ymail.com</a>

## **COMPANY BACKGROUND**

### **INTRODUCTION**

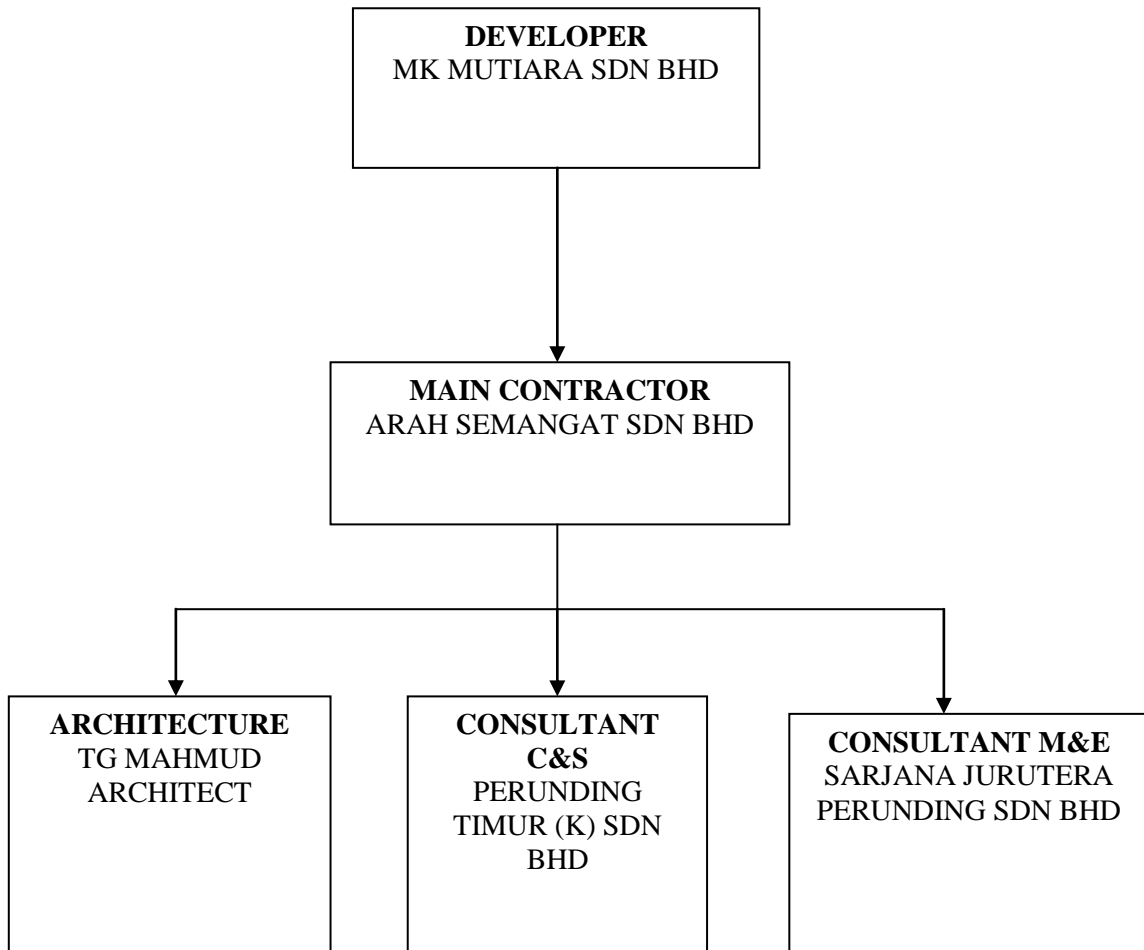
ArahSemangatSdnBhd was work under the Mk Mutiara Construction. Mk Mutiara was give all responsibilities to the ArahSemangat to handle this project in Jitra. This project was do the residential building. For example: Terrace house one storey, Terrace house two Storey, Semi-D one storey, Semi- D Two Storey, Bungalows, and apartment. In this project it have 1 project manager, 1 site head, 2 site supervisor and 1 safety officer. The name of the project manager is Simon, Toomy Chew is the site head, SayedAzam and Uncle Chew is the site Supervisor and the safety officer is Pak CikMjlin.All of this people was handle the project. Workers this this project have 160 people it divide to the carpenter, bar bender, concretor, and general worker. Mostly come from Pakistan, Myanmar, Indonesia, and Vietnam. The value of this project estimated in 80 millions and expected to be completed within 5 years.

ORGANIZATION CHAT





## PROJECT TEAM MEMBER



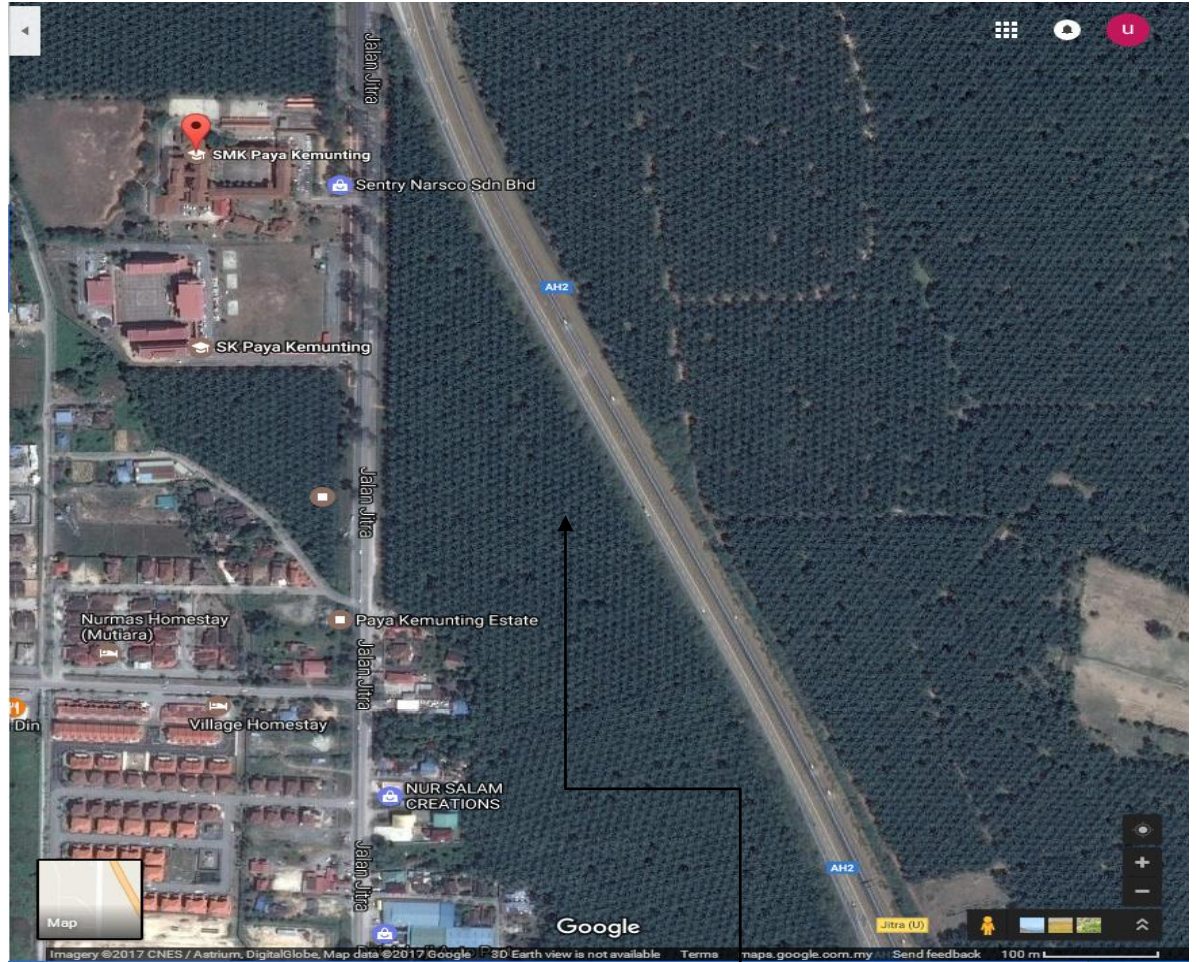
**PROJECT DETAILS  
CONTRACT INFORMATION**

Type	FASA 2A	FASA 1
Original Contract Sum	789,719,00	57,294,712
Contract Period	4 Months	24 Months
Contract Date of Commencement	01/08/2016	01/10/2016
Contract Date Of Completion	30/11/2016	20/09/2018

**GENERAL INFORMATION**

Type	FASA 2A	FASA 1
Ahead / Delay	N/L	0
Original contract target schedule % completion as of 05/01/2017	100%	2.8%
Actual % Completion as of 05/01/2017	100%	2.8%
Forecast completion Date according to latest progress as of	N/L	30/09/2018

## LOCATION PLAN



**THIS IS MY SITE**

## **AIMS AND OBJECTIVES**

- To develop the student's intellectual powers and ability in analyzing fact finding and investigation through relevant scientific and qualitative analysis
- To develop a knowledge and understanding of the principles, concepts and procedures with special emphasis in the field of material and construction.
- To educate the student in dealing with the implication of developments and awareness of factors affecting the built environment and society.
- It enables the department to develop an information technology system over the broad area of subjects, which can be used as a basic for future research.
- To produces graduates an opportunity to reinforce taught or learnt material and strengthens integration in fostering individual relationship between the student, staff and other members of the construction industry

## **VISION AND MISSION**

### **VISION**

- **A** construction specialist catalyzing property development through excellent administration and management.

### **MISSION**

- To provide high quality finished construction and property development
- To fulfill customers “need and want”
- To increase resources and optimum returns to the shareholders
- To provide conducive working environment and dynamic workforce
- To support environment and local culture toward harmony

## **POLICY AND QUALITY**

We arahSemangatSdnBhd, a provider of turnkey design and construction works is committed to comply to customers, regulatory requirements and QMS ISO 9001 requirement inline with our Quality Policy as follows:

- Achieve excellent design & construction work
- Satisfaction of customer is our aim
- Strive for continual improvement
- Be safe & environment friendly

## **1.1 LITERATURE REVIEW ABOUT THE FRAMEWORK**

### **WHAT IS FORMWORK**

Formwork is a die or a mould including all supporting structures used to shape and support the concrete until it attains sufficient strength to carry its own weight. It should be capable of carrying all imposed dead and live loads apart from its own weight.

### **INTRODUCTION TO FORMWORK**

- Formwork has been in use since the beginning of concrete construction
- New materials such as steel, plastics and fiberglass are used in formwork
- Greater attention is being given to the design, fabrication, erection and dismantling of formwork

### **DEFINITION:**

- As a structure
- Temporary which is designed to contain fresh fluid concrete.
- Form it into the required shape and dimensions.
- Support it until it cures sufficiently to become self supporting

The term 'formwork' includes the actual material contact with the concrete, known as form face, and all the necessary associated supporting structure.

## **1.2 REQUIRMENTS OF A GOOD FORMWORK SYSTEM**

- How formwork can be erected and de- shuttered fast.
- How good concrete quality and surface finish can be achieved
- What is the optimum stock of formwork required for the size of work force, the specified time schedule and flow of materials
- What is the overall cost savings that can be achieved using the right type of framework.
- How SAFETY can be improved for the site personnel

In order to successfully carry out its function, formwork must achieve a balance of following requirement.

- Containment
- Strength
- Resistance to Leakage
- Accuracy
- Ease of handling
- Finish and reuse potential
- Access for concerted
- Economy

### **1.3 TYPES OF FORMWORK (SHUTTERING) FOR CONCRETE CONSTRUCTION**

Formwork in concrete construction is used as mould for a structure in which fresh concrete is poured only to harden subsequently. Types of formwork for concrete construction depends on formwork material and type of structural element.

Formworks can also be named based on the type of structural member construction such as slab formwork for use slab, beam formwork, column formwork for use in beams and columns respectively etc.

The construction of formwork takes time and involves expenditure upto 20 to 25% of the cost of structure or even more. Design of these temporary structures are made to economic expenditure. The operation of removing the formwork can be reused. Reusable forms are known as panel forms and non – usable are called stationary forms.

Timber is the most common material used for formwork. The disadvantage with timber formwork is that it will warp, swell and shrink. Application of water impermeable cos to the surface of wood mitigates these defects.



**1.4 A GOOD FORMWORK SHOULD SATISFY THE FOLLOWING REQUIREMENTS:**

1. It should be strong enough to withstand all types of dead and live load
2. It should be rigidly constructed and efficiently propped and braced both horizontally and vertically, so as to retain its shape.
3. The joints in the formwork should be tight against leakage of cement grout.
4. Construction of formwork should permit removal of various part in desired sequences without damage to the concrete.
5. The material of the formwork should be cheap, easily available and should be suitable for reuse
6. The formwork should be set accurately to the desired line and levels should have plane surface
7. It should be as light as possible.
8. The material of the formwork should not warp or get distorted when exposed to the elements
9. It should rest on firm base

## **1.5 ECONOMY IN FORMWORK**

The following points are to be kept in view to effect economy in the cost of formwork:

1. The plan of the building should imply minimum number of variations in the size of rooms, floor area etc. so as to permit reuse of the formwork repeatedly
2. Design should be perfect to use slender sections only in a most economical way
3. Minimum sawing and cutting of wooden pieces should be made to enable reuse of the material a number of times. The quantity of surface finish depends on the quality of the formwork

Formwork can be made out of timber, plywood, steel, precast concrete or fiberglass used separately or in combination. Steel forms are used in situation where large numbers of re-use of the same forms are necessary. For small work, timber formwork proves useful. Fibre glass made of precast concrete and aluminium are used in cast-in-situ construction such as slabs or members involving curved surfaces.

## 1.6 TYPES OF FORMWORK IN CONSTRUCTION

### TIMBER FORMWORK:

Timber for formwork should satisfy the following requirement:

- Well seasoned
- Light in weight
- Easily workable with nails without splitting
- Free from loose knots

Timber used for shuttering for exposed concrete work should have smooth and even surface on all faces which come contact with concrete.

#### ➤ Number sizes of members for timber formwork

Sheeting for slabs, beam, column side and beam bottom	25mm to 40mm thick
Joints, ledges	50 x 70 mm to 50 x 150 mm
Post	75 x 100 mm to 100 x 100 mm

**Table shows 1.6**

Advantages of timber formwork

- It is economical for small construction jobs
- It is design flexible and easy to erect
- It has good thermal insulation which makes it useful to be used in colder region
- It can easily be made into any shape or size

### **1.6.1 PLYWOOD FORMWORK**

Resin bonded plywood sheets are attached to timber frames to make up panels of require sizes. The cost of plywood formwork compares favourably with that of timber shuttering and it may even prove cheaper in certain cases in view of the following considerations:

- It is possible to have smooth finish in which case on cost in surface finishing is here
- By use of large size panels it is possible to effect saving in the labour cost of fixing and dismantling
- Number of reuses are more as compared with timber shuttering. For estimation purpose, number of reuses can be taken as 20 to 25

### **1.6.2 STEEL FORMWORK**

The consist of panels fabricated out of thin steel plates stiffened along the edges by small steel angles. The panel units can be held together trough the use of suitable clamps or bolts and nuts. The panels can be fabricated in large number in any desired modular shapes or size. Steel forms are largely used in large projects or in situation where large number reuses of the shuttering is possible. This type of shuttering is considered most suitable for circular or curved structures.

### **1.6.3 STEEL FORMS COMPARED WITH TIMBER FORMWORK:**

- Steel forms are stronger, durable and have longer life than timber formwork and their reuses are more in number
- Steel forms can be installed and dismantled with greater ease and speed
- The quality of exposed concrete surface by using steel forms is good and such surfaces need no further treatment
- Steel formwork does not shrink or warp

### **Order and method of removing formwork:**

The sequence of order and method of removal of formwork are as follows;

- Shuttering forming the vertical faces of walls, beams and column sides should be removed first as they bear no load but only retain the concrete
- Shuttering forming soffit of slabs should be removed next
- Shuttering forming soffit of beams, girders or other heavily loaded shuttering should be removed in the end

Rapid hardening cement, warm weather and light loading conditions allow early removal of formwork. The formwork should under no circumstances be allowed to be removed until all the concrete reaches strength of at least twice the stresses to which the concrete may be subjected at the time of removal of formwork. All formworks should be eased gradually and carefully in order to prevent the load being suddenly transferred to concrete.

**1.7 Table: Period of Removal of Formwork**

No	Description of structural member	Period time
1	Walls, columns and vertical sides of beams	1 to 2 days
2	Slabs (props left under)	3 days
3	Beam soffits(props left under)	3 days
4	Removal of props to slabs	
	(a) For slabs spanning upto 4.5m	7 days
	(b) For slabs spanning over 4.5 m	14 days
5	Removal of props to beams and arches	
	(a) Spanning upto 6mm	14 days
	(b) Spanning over 6 m	21 days

## 2.0 THE INSTALLATION OF FORMWORK AT CASE STUDY

### INTRODUCTION

- Formwork has been in use since the beginning of concrete construction
- New materials such as steel, plastics and fiberglass are used in formwork
- Greater attention is being given to the design, fabrication, erection and dismantling of formwork

### DEFINITION:

- As a structure
- Temporary which is designed to contain fresh fluid concrete.
- Form it into the required shape and dimensions.
- Support it until it cures sufficiently to become self supporting

The term 'formwork' includes the actual material contact with the concrete, known as form face, and all the necessary associated supporting structure.



**Figure Shows 2.0**

## **2.1 TYPES OF FORMWORK USING AT MY CASE STUDY**

### **TIMBER FORMWORK:**

Timber for formwork should satisfy the following requirement:

- Well seasoned
- Light in weight
- Easily workable with nails without splitting
- Free from loose knots

Timber used for shuttering for exposed concrete work should have smooth and even surface on all faces which come contact with concrete.



**Figure Shows 2.1**



## 2.2 PLYWOOD FORMWORK

Resin bonded plywood sheets are attached to timber frames to make up panels of require sizes. The cost of plywood formwork compares favourably with that of timber shuttering and it may even prove cheaper in certain cases in view of the following considerations:

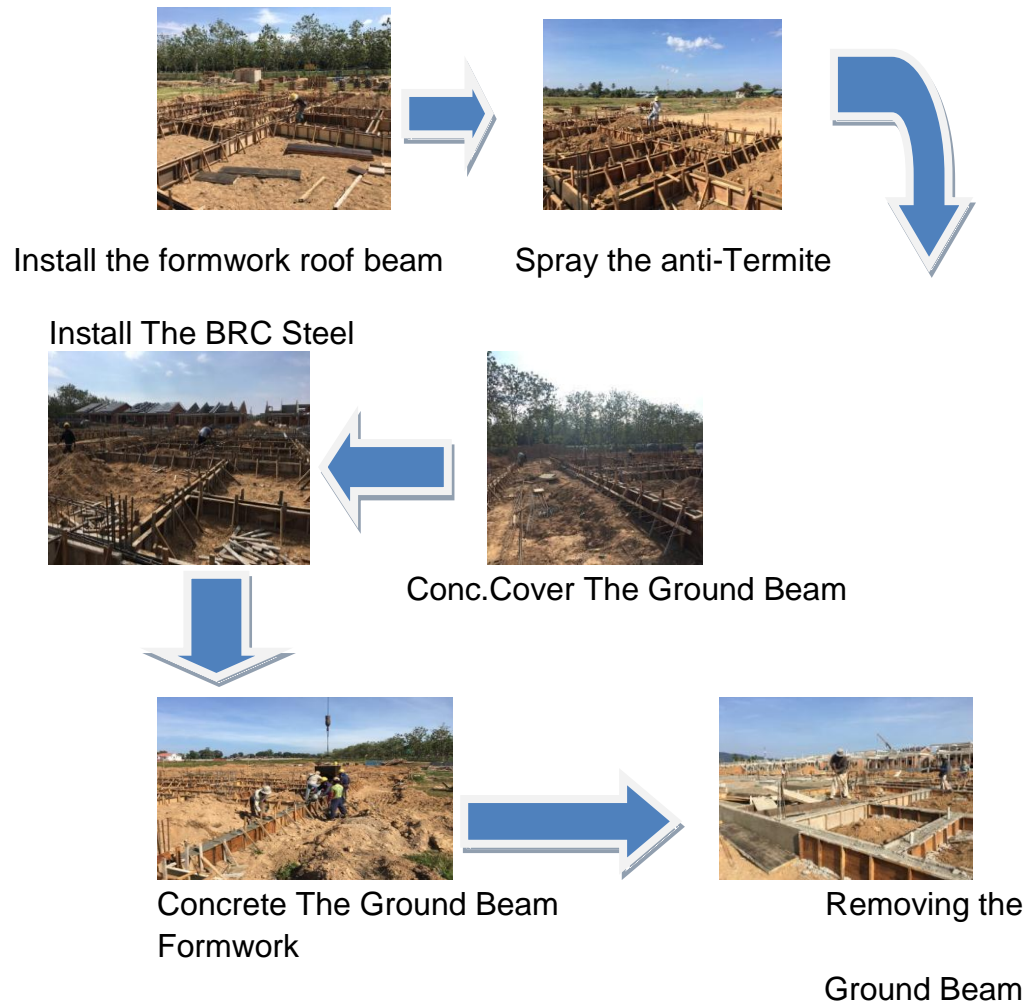
- It is possible to have smooth finish in which case on cost in surface finishing is here
- By use of large size panels it is possible to effect saving in the labour cost of fixing and dismantling
- Number of reuses are more as compared with timber shuttering. For estimation purpose, number of reuses can be taken as 20 to 25



**Figure Shows 2.2**

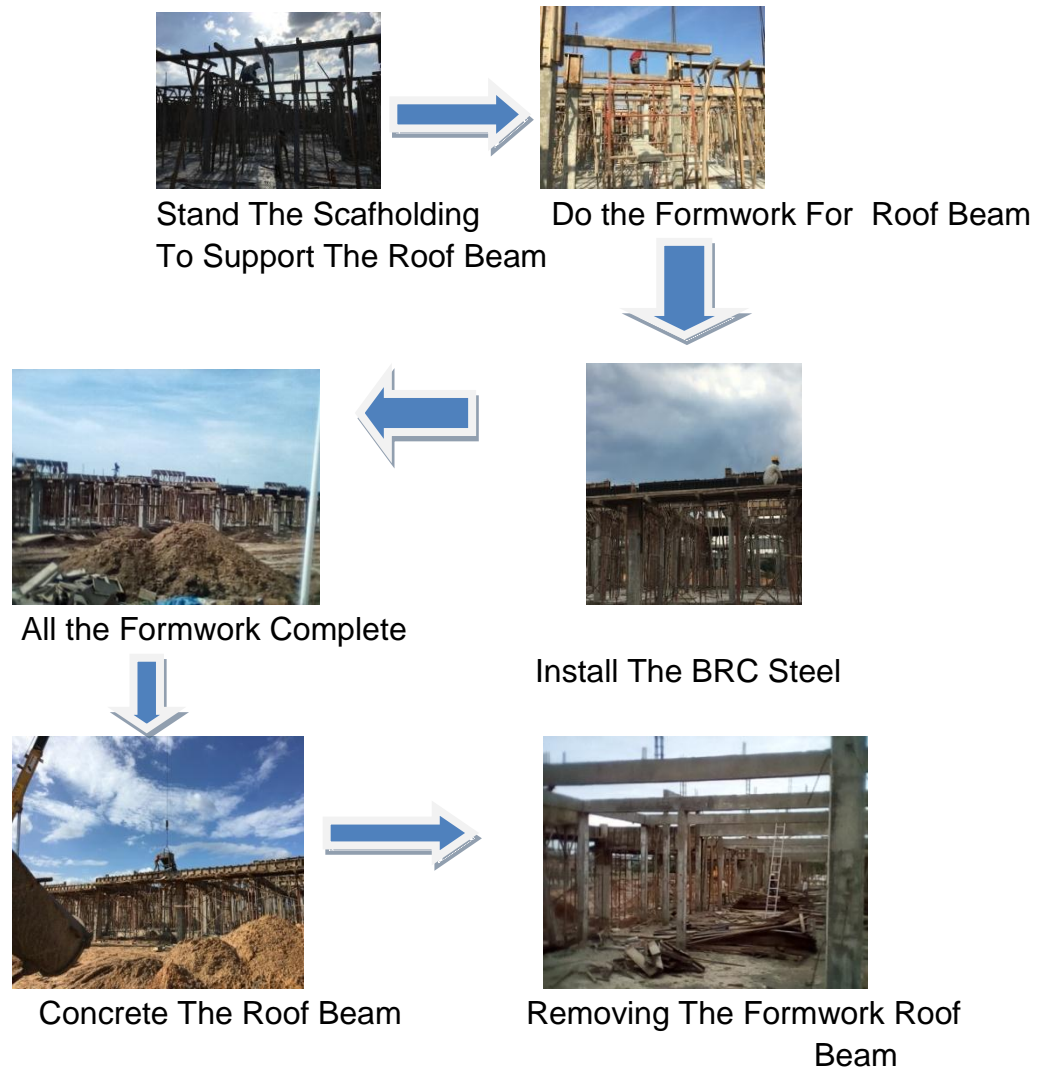
## 2.2 PROCESS DO THE FORMWORK IN MY CASE STUDY

### 2.2.1 Ground Beam



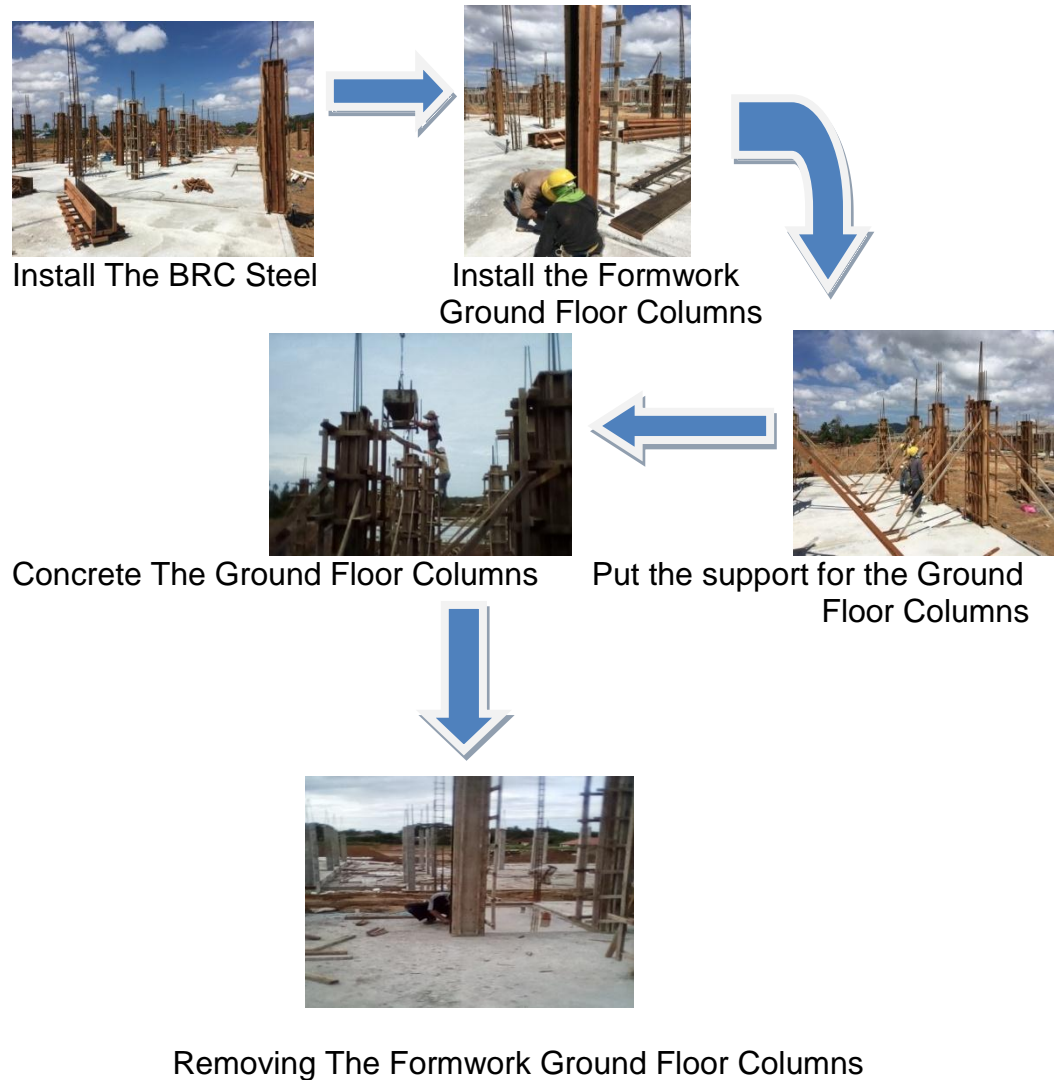
**Figure 2.2.1 Shows The Ground Beam Process**

### 2.2.2 Roof Beam



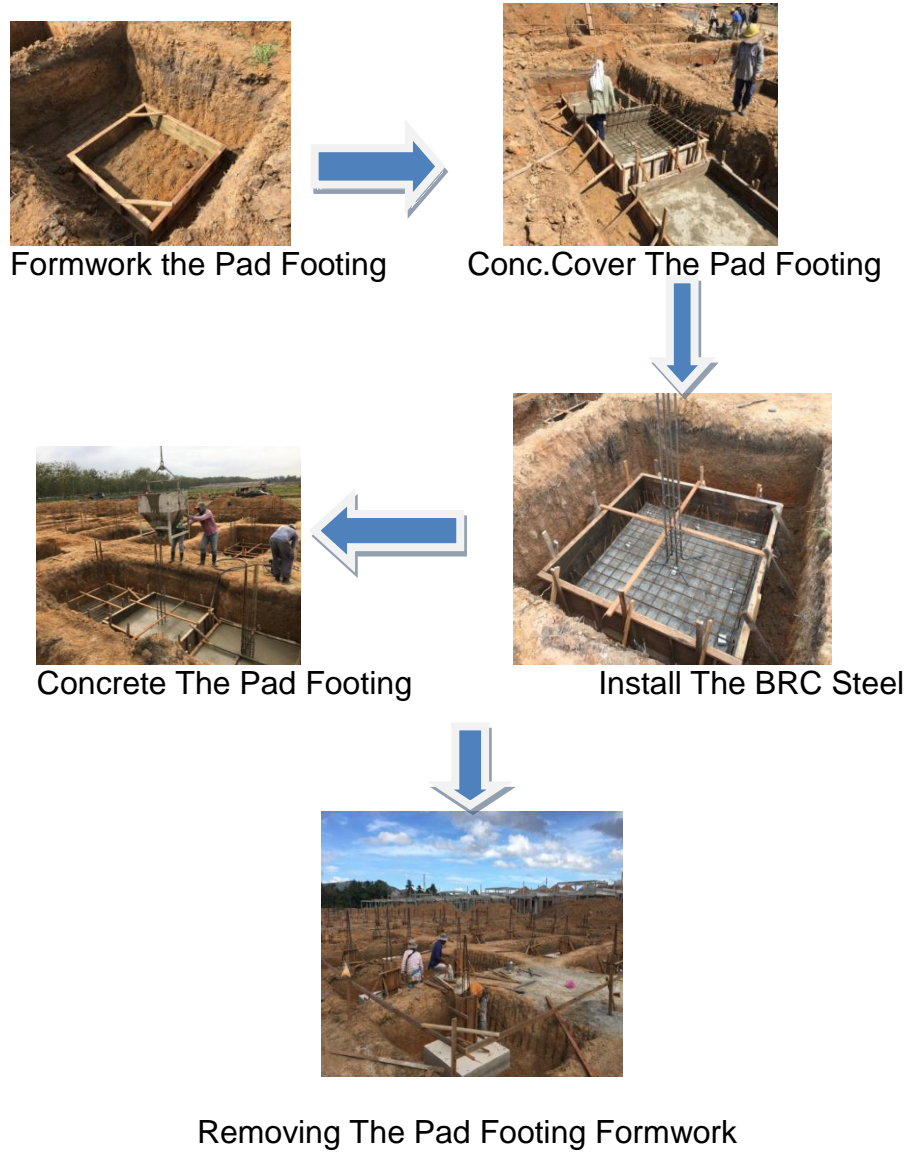
**Figure 2.2.2 Shows The Roof Beam Process**

### 2.2.3 Ground Floor Columns



**Figure 2.2.3 Shows The Ground Floor Columns**

### 2.2.4 Pad Footing



**Figure 2.2.4 Shows The Pad Footing Process**



### **2.3 THE PERSON WHO WAS DO SKILLED WORKER DO THE FORMWORK IN MY CASE STUDY**

**Example:**



Name : Rafiq

From: Jawa Timur, Indonesia

Still Malaysia: 5 years

Skilled Worker can do the capenter work, concretor



Name: Hadi

From: Jawa Timur, Indonesia

Still Malaysia: 5 years

Skilled Worker can do the capenter work, concretor

**Figure 2.3 Shows The Example of Workers**

## 2.4 THE RECYCLYE OF THE TIMBER USED

They was used many times of timber to do the formwork. How the timber can used many times to do the formwork, the was rub the dirty black oil before they was do the formwork. When the have used, the will be gathered in one place. When they not rub the timber with the black oil this timber cannot still a long and can use only one or two times.



**Figure 2.4.1**

This Timber was rub with dirty oil to easy open when use

## 2.5 RECYCLE OF THE FORMWORK TIMBER

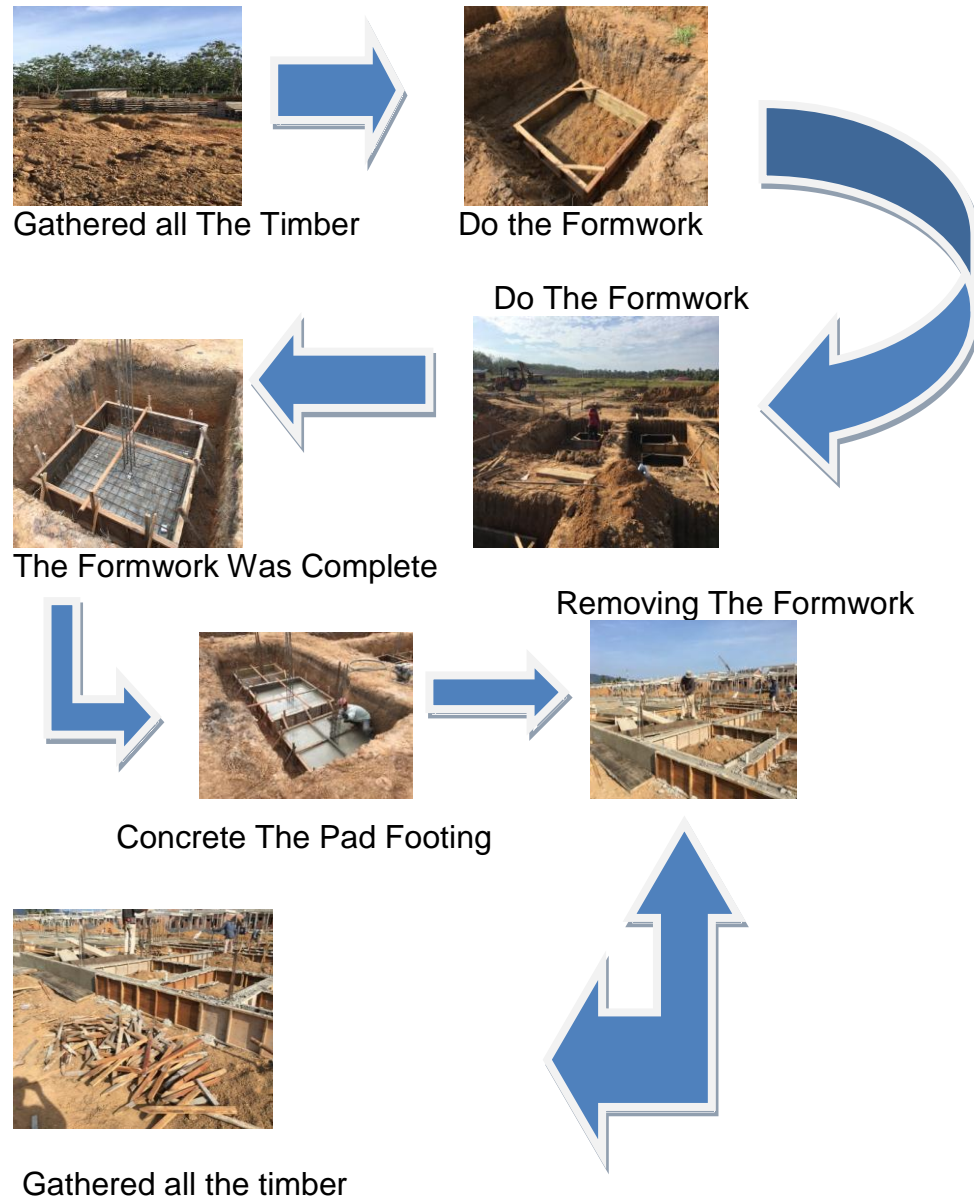


Figure Show 2.5: the Recycle of the Formwork



## **2.6 THE PROBLEM WHEN DO THE FORMWORK**

### **The problem when do the timber formwork is:**

- When they was not rub with the dirty oil the timber can use only two times
- When the broken timber do the formwork so many, they not have place to throw their garbage
- When their timber was so hard they cannot use to do the formwork
- When they was measure their timber and their measure was wrong they cannot use their timber

### **The problem when removing their timber formwork:**

- When the was wrong step to remove their timber this timber can use one times
- Cannot have the place when their removal so many
- Not enough the workers when removing the formwork

## 2.7 THE SAFETY WHEN DO THE FORMWORK

### Formwork Safety: Concrete

Formwork used and designed for cast-in-place concrete requires special considerations. Due to the significant weight that concrete adds to formwork and shoring equipment, it is important to check that eccentric loads are located over members that have been designed for such loading.

If single-post shores are used one on top of another (tiered), then additional shoring requirements must be met. The shores must be:

- Designed by a qualified designer and the erected shoring must be inspected by an engineer qualified in structural design;
- Vertically aligned;
- Spliced to prevent misalignment; and
- Adequately braced in two mutually perpendicular directions at the splice level.

Adjustment of single-post shores to raise formwork must not be made after the placement of concrete. Reshoring must be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.



**Figure Show 2.7**

### 2.7.1 Removing Formwork: Safety Guidelines

When it's time to remove formwork, follow these recommendations:

- Do not remove forms and shores (except those that are used for slabs on grade and slip forms) until the worker determines that the concrete has gained sufficient strength to support its weight and superimposed loads.
- Verify concrete strength information against construction drawings, specifications and testing results. Testing must follow the American Society for Testing and Materials (ASTM) standard test method designed to determine the concrete compressive strength, and results must indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.
- Read all your contract technical information covering the procedures on how and when to remove the formwork.



**Figure 2.7.1**

## 2.8 THE QUALITY OF THE TIMBER WHEN DO THE FORMWORK

### i) The Types of Timber when do the Formwork.



**Figure Show 2.8**

This timber was name 'Kuai' this gred for this timber was Gred B this timber was recycle timber.this timber can use to do all formwork in the construction. This timber was long lasting to use. This timber was easy to do the formwork it can easier to worker to do the work. The standard size of this timber is 25 mm to 40 mm thick.



**Figure Show 2.8**

1. It should be strong enough to withstand all types of dead and live loads.
2. It should be rigidly constructed and efficiently propped and braced both horizontally and vertically, so as to retain its shape.
3. The joints in the formwork should be tight against leakage of cement grout.
4. Construction of formwork should permit removal of various parts in desired sequences without damage to the concrete.
5. The material of the formwork should be cheap, easily available and should be suitable for reuse.

**2.9 TABLE:PERIOD OF REMOVAL FORMWORK**

<b>No</b>	<b>Description of structural member</b>	<b>Period time</b>
1	Walls, columns and vertical sides of beams	1 to 2 days
2	Slabs (props left under)	3 days
3	Beam soffits(props left under)	3 days
4	Removal of props to slabs	
	(c) For slabs spanning upto 4.5m	7 days
	(d) For slabs spanning over 4.5 m	14 days
5	Removal of props to beams and arches	
	(c) Spanning upto 6mm	14 days
	(d) Spanning over 6 m	21 days

### 3.0 TABLE PROBLEM AND RECOMMENDATION

PROBLEM	RECOMMENDATION
This safety in this construction is not very tight it is because have a worker was not wear the safety helmet, safety boots	I suggest this construction was tighten the safety in this construction with when the worker not wear the safety completeness the safety officer can expelled the worker.
The garbage in this construction was uncontrollable for example the timber was not use was look everywhere and the garbage at 'kongsi house' was uncontrol.	I suggest this construction was provide the trash to control this garbage at the 'kongsi house' and have a one place to roasted the timber was not use.
This construction cannot have a overtime when the work until night	I suggest this company have a compassion to give the overtime when do the work until the night.
When the work was until night they have not a light and they was using a mobile crane light when they was concrete at night	I suggest when they was work until night the company was prepare the lamp for safety to the worker when they have do the work and the concrete cannot until night
In this construction cannot have a facility to do the report work for example Photostat machine, computer and so on	I suggest this company was prepare the suitable site office, Photostat machine, computer and so on.

## **4.0 CONCLUSION**

I have learnt a lot more than I thought I would, on this practical training. Because this was a road we were working on, and not a building(as it we in class), I had my doubts as to how relevant this would be to me and if beneficial at all. I was proved wrong.

Being on site does make difference. When things learnt in class become more than theory, understanding comes a lot easier and better. I watched the workers use formwork to form blocks, and for the first time, I got to see the formwork we had talked about in class

The practical training experience was a success, and proved to be extremely vital for learning purposes. The University does offer good theoretical teachings, although some things can only be learnt on site.

## 5.0 Refrencess

- <https://www.thebalance.com/safety-installation-and-removal-of-formwork-844783>
- <https://theconstructor.org/building/formwork-shuttering/types-of-formwork-shuttering/3767/>
- <http://civil-resources.blogspot.my/2010/06/formwork.html>



## APPENDIX 1

ARAH SEMANGAT SDN BHD									
CADANGAN MEMBINA DAN MENYIAPKAN PEMBINAAN DI ATAS LOT 60123 (LOT LAMA 1633), BANDAR JITRA, DAERAH KUBANG PASU, KEDAH DARUL AMAN.									
FASA 2A: TERDIRI DARIPADA 4 UNIT RUMAH BERKEMBAR 2 TINGKAT JENIS A DAN B									
FASA 1: TERDIRI DARIPADA 36 UNIT RUMAH BERKEMBAR 1 TINGKAT, 30 UNIT RUMAH BERKEMBAR 2 TINGKAT, 131 UNIT RUMAH TERES 1 TINGKAT DAN 58 UNIT TERES 2 TINGKAT.									
Summary Of Samples Submission & Approval - Architectural									
Item	Main	Description	Target Date Submission	Target Commence Date	Min. Fabrication Duration	Submitted Date			Remarks
						Sample	Shop Dwg.	Category / Certificate	
1	Anti Termite Treatment		21/08/2016		2 weeks			23/08/2016	Refer sample transmittal - P032/ST16-002
2	Sanitary	Sanitary Wares			4 weeks	10/10/2016	14/08/2016	19/09/2016	Refer sample transmittal - P032/ST16-034, 053
		Sanitary Fittings			4 weeks	10/04/2016	14/08/2016	19/09/2016	Refer sample transmittal - P032/ST16-034, 050
3	Brick	Common Clay Brick	8/2/2016		4 weeks	01/08/2016	02/08/2016	03/08/2016	Refer sample transmittal - P032/ST16-010, 011, 012
		Cement sand brick				10/12/2016	10/12/2016	18/12/2016	Refer sample transmittal - P032/ST16-023, 054, 055, 076
4	Metal Frame	Metal door frame	8/2/2016						
5	Normal Door Leaf	Plywood Flush Door			4 weeks	22/11/2016	22/11/2016	22/11/2016	Refer sample transmittal - P032/ST16-014 & 015, 023
		PVC corner bit	8/2/2016		1 week	20/07/2016	20/07/2016	03/08/2016	Refer sample transmittal - P032/ST16-074, 075
		Main Entrance Door			4 weeks				
		Sliding Door				22/11/2016	22/11/2016	22/11/2016	Refer sample transmittal - P032/ST16-072, 073
6	Ironmongery	All Door Except Fire Rated			4 weeks	11/10/2016	10/11/2016	10/11/2016	Refer sample transmittal - P032/ST16-069
7	Paint	External Wall / Internal wall			2 weeks				
		External Wall / Internal wall				14/09/2016	14/09/2016	19/09/2016	Refer sample transmittal - P032/ST16-065
8	Floor Finishes	Floor Tiles			4 weeks				
		Wall Tiles			4 weeks	08/11/2016	08/11/2016	08/11/2016	Refer sample transmittal - P032/ST16-066
9	Ceiling	6.2mm UAC Sus. Ceiling			4 weeks				
						14/09/2016	14/09/2016	19/09/2016	Refer sample transmittal - P032/ST16-037 & 038
10	Roof	Roof tiles	02/08/2016			02/08/2016	03/08/2016		Refer sample transmittal - P032/ST16-017, 018
		Roof tiles	02/08/2016			02/08/2016	30/08/2016		Refer sample transmittal - P032/ST16-019 & 029
		Isola Board			4 weeks	30/08/2016	05/09/2016		Refer sample transmittal - P032/ST16-030
11	Alum./ Glazing	Window frame & glazing			4 weeks				
		Window copping	8/2/2016			21/09/2016	22/09/2016		Refer sample transmittal - P032/ST16-040, 041 & 042
13		Aluminium Louvers				02/08/2016	03/08/2016		Refer sample transmittal - P032/ST16-021 & 020
		Box Louvers				13/11/2016	13/11/2016		Refer sample transmittal - P032/ST16-070
14	Rain water down pipe	UPVC Pipe	29/08/2016	2/7/2016					
						26/08/2016	01/07/2016		Refer sample transmittal - P032/ST16-004, 067
15	Fencing	Railing for staircase & balcony	9/9/2016	30/9/2016	4 weeks	24/10/2016	09/11/2016	09/11/2016	Refer sample transmittal - P032/ST16-060, 063, 064, 066
		Water Proofing				20/10/2016	19/10/2016	02/11/2016	Refer sample transmittal - P032/ST16-059, 061, 062

## APPENDIX 2

CADANGAN MEMBINA DAN MENYIAPKAN PEMBINAAN DI ATAS LOT 60123 (LOT LAMA 1633), BANDAR JITRA, DAERAH KUBANG PASU, KEDAH DARUL AMAN.

FASA 2A: TERDIRI DARIPADA 4 UNIT RUMAH BERKEMBAR 2 TINGKAT JENIS A DAN B

FASA 1: TERDIRI DARIPADA 36 UNIT RUMAH BERKEMBAR 1 TINGKAT, 30 UNIT RUMAH BERKEMBAR 2 TINGKAT, 131 UNIT RUMAH TERES 1 TINGKAT DAN 58 UNIT TERES 2 TINGKAT.

**MACHINERY SUMMARY**

Trade	Day		Month of Dec 2016																												Total					
	Date		Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed		Thu	Fri	Sat	Sun	
Tower Crane																																				
Mobile Crane																																				
Piling Machine																																				
Excavator																																				
Backhoe																																				
Roller Compactor																																				
Concrete Mixer																																				
Concrete Hacker																																				
Welding Set																																				
Bar Bander Machine																																				
Bar Cutting Machine																																				
Dump Truck																																				
Forklift																																				
Back Pusher																																				
6 Wheeler Lorry																																				
10 Wheeler Lorry																																				
Air Breaker																																				
Water Pump																																				
Gen Set																																				
Oxy Cutter																																				
Vibrator Poker																																				
4 Wheels Lorry																																				
Compressor																																				
Concrete Drill																																				
Pallet Truck																																				
Compactor																																				
Asphalt Pavers																																				
Bulldozer																																				
Piling Cutter																																				
Mini Excavator																																				
Lori Trailler																																				
Forklift																																				
Skylift																																				
Total																																				

R ⇌ Raining Hrs

Appendix 6.3

## APPENDIX 3

CADANGAN MEMBINA DAN MENYIAPKAN PEMBINAAN DI ATAS LOT 60123 (LOT LAMA 1633), BANDAR JITRA, DAERAH KUBANG PASU, KEDAH DARUL AMAN.

FASA 2A: TERDIRI DARIPADA 4 UNIT RUMAH BERKEMBAR 2 TINGKAT JENIS A DAN B

FASA 1: TERDIRI DARIPADA 36 UNIT RUMAH BERKEMBAR 1 TINGKAT, 30 UNIT RUMAH BERKEMBAR 2 TINGKAT, 131 UNIT RUMAH TERES 1 TINGKAT DAN 58 UNIT TERES 2 TINGKAT.

### 4.3.2 Summary of Inspection Check List.

#### i. Overall

	Description	Date Start	Date Completion	Remarks
4.3.2.i.1	- <b>Setting Out</b> Total Inspection records : No. P032/OVERALL/SET - 001	18-05-2016	18-05-2016	
4.3.2.i.2	- <b>Earthwork</b> Total Inspection records : No. P032/OVERALL/EARTH -001 until 005	08-06-2016	01-11-2016	
4.3.2.i.3	- <b>Sewerage</b> Total Inspection records : No. P032/OVERALL/SEWERAGE-001	11-12-2016	11-12-2016	
4.3.2.i.4	- <b>Road &amp; Drainage</b> Total Inspection records : No P032/OVERALL/R&D- 001	13-12-2016	13-12-2016	
4.3.2.i.5	- <b>Road &amp; Drainage</b> Total Inspection records : No P032/OVERALL/WR-001	14-12-2016	14-12-2016	



## Page 3 of 4