



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

**PILING WORKS OF REINFORCED  
CONCRETE PILE**

**Prepared by:**

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**(PERAK)**

**DECEMBER 2019**

It is recommended that the report of this practical training provided

by

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**entitled**

**Piling Works Of Reinforced Concrete Pile**

be accepted in partial fulfillment of the requirement for obtaining the Diploma In Building.

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**STUDENT'S DECLARATION**

I hereby declare that this report is my own work, except for extract and summaries for which the original references are stated herein, prepared during a practical training session that I underwent at Fast Tech Builders Sdn.Bhd for a duration of 20 weeks starting from 5 August 2019 and ended on 20 December 2019. It is submitted as one of the prerequisite requirements of BGN310 and accepted as a partial fulfillment of the requirements for obtaining the Diploma in Building.

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## ACKNOWLEDGEMENT

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The success and final outcome of this report required a lot of guidance and assistance from many people and I able successfully complete this industrial training report. All that we have done is only due to such supervision and assistance and we would not forget to thank them.

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My grateful thanks to my training supervisor, Dr Hayroman bin Ahmad, who has been very helpful throughout completion of my report. Also his invaluable help of constructive comments and suggestions have contributed to the success for finishing this industrial training report.

We would like to extend my gratitude to every single member who has been participated and working hand in hand to complete this report. Finally, special appreciation to my family and friends for their constant encouragement, moral support and guidance with also financial support which helped me during completing this report. I also learned a lot of things during my industrial training. A sincere thanks and appreciation for those who helped me both directly and indirectly.

## ABSTRACT

This report describes the whole activities during my five months of industrial training at Fast Tech Builders Sdn Bhd. The company handle construction work involving government agencies as well as the private sector. This report describes in detail the background of the company, inventory management, and information system, as well as activities conducted during the training period, issues encountered as well as constructive comments and suggestions on behalf of the organization.

Foundation is an important structural element in determining the strength and stability of a building. It also plays a role in carrying the whole load and distributing the load to the ground. The base is the lowest in the building's structure that touches the ground.

There are several foundation functions of a building to move the load of the structure on it and to spread it safely to the ground. In addition, it also prevents erosion of the built-up soil structure. The foundation also provides a flat surface for construction work. In addition, the base acts to enhance the stability of the structure with the structure embedded in the soil. The foundation design is the process of determining the type and size of the foundation and the maximum load it can support for the soil.

The foundations also maintain a lifelong structure, so it is important for engineers to take into account all of the burdens they face as they are difficult to change or repair when they are built. The foundation function of this site is to carry the entire load of the building and move it to the ground floor below it. The foundation also works to distribute the load from the upper structure to the safe basement.

From the practical training, students can explore on how methods and procedure are used for the construction of that building especially more to the piling work with is used in that project.

Lastly, the students also have the opportunity to look around the project site and see the construction work. The understanding of the project management practice can be a good basic for us as a student in order to attaining perceptive of project management.

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## CHAPTER 1.0

### INTRODUCTION

Foundation is a crucial structural part in building that determinative the strength and stability of a building. The function of foundation is to transfer the structural loads from a building safely into the ground surface area (Tomlinson M.J, 1995). There will be sedimentation on the bottom and generally it'll not be able to withstand the load because the soil is typically weaker than concrete, steel or wood.

It is the initial work done before consequent construction method. Typically, the foundation is built at a depth of between one and five meters, particularly for normal land. This depth is below the bottom level to make sure that the bottom is found on a solid soil layer and is meant to stop it from moving sideways.

There are different types of pile classified by type, size, strength, material, shape and so on. Between the pile commonly used in construction are timber piles, concrete piles, spun piles, steel piles, micro piles.

There are several basic functions of a building to spread the load of the structure thereon and to unfold it safely to the ground. Additionally, it prevents erosion of the built-up soil structure. The foundation also acts to reinforce the steadiness of the structure with the structure embedded within the soil. The foundation design is that the method of determinative the type and size of the foundation.

There was two type of deep foundation that are commonly used in Malaysia, which is pile foundation and drilled shafts or caissons. In most building construction projects, the pile will be used as the basis for increasing the strength and strength of the building.



The pile used is because it is the basis of most suitable. The pile is a column-shaped structural element in which it functions to distribute the superstructure load through the less compressible strata or the aqueous layer on the more compact and stronger strata.

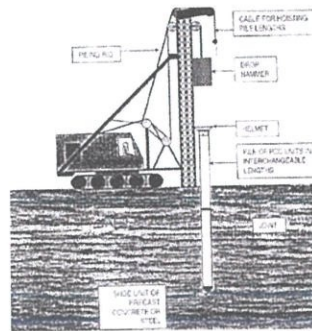


Figure 1.0 Piling Rig Process

Source: (<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxrZWp1cnV0ZXJhYW5hd2FtfGd4OjQ2YjAyYTEzM2UwNTg2MmY>)

## 1.1 Background and Scope of Study

Figure 1.1 below shows the location of site project which is in Kolej Vokasional Kulim, Kedah Darul Aman. The school building is located in a residential area, a majority of the Malay community and residential areas there is a pluralistic region that includes all races. The size of the school site is approximately 35 acres to accommodate the entire facility within the school.

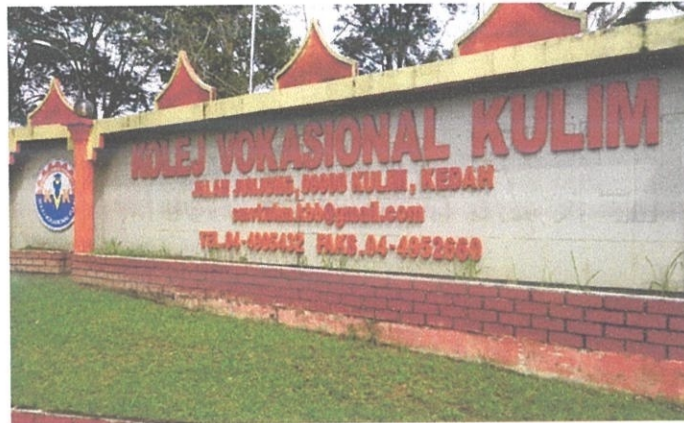


Figure 1.1: Entrance of Kolej Vokasional Kulim

The project is the construction of a new building with 6 main blocks namely Refrigeration & Air Conditioning Workshop, Business Management, Simulation Room, Computer Lab and Auto Cad Lab (Block A), Welding Technology Workshop (Block B), Construction Technology Workshop (Block C), Automotive Workshop (Block D), Industrial Machining Workshop (Block E), Electrical & Electronics Workshop (Block F) and 2 Unit Centered Toilet (Block I) and support building namely TNB type solid substation, In addition, the project also renovated Physics Laboratory to WEB Data Management & Application Management Lab (Block G)



Figure 1.2 : Location of site project via google maps

## 1.2 Objectives

1. To identify the advantages and disadvantages by using precast concrete pile.
2. To investigate the procedure of precast concrete pile
3. To determine the problem and solution that relating to the pilling construction.

### 1.3 Methods of Study

There are 3 types of research methods in order to complete the report. The methods include observation of the company and site visit, explanation from the project manager also the staff of Fast Tech company in charge on site visit and also document review as reference that given.

By using observation and site visit method, I also learned on how to refer the building plan of the ongoing construction. At the same time, I always try to observed as long as I can collect data and method of certain work at site. I also can experience to getting the results of the piling process on my own with is involve to of my topic. At the same time, write down some notes during the briefing and take pictures at the plan make me more understand. For example, I can also record all the number of blow for piling work for each point.

Explanation from the project manager has been made with the person in charge at the construction site. This is to ensure the information that have been gained from the books are similar with the real procedure. The interviews had been done with the project manager to obtain the information of the details of the deep foundation used at the construction site.

Lastly, the other method is document review. During the interview, we have been given the opportunity to take all the results regarding to process and the specification from as a reference. I also take a chance to take pictures on how the process going from the beginning until the last process. The document review also including result of piling work and the data of the process also the plan of construction processes.

## COMPANY BACKGROUND

### 1.3 Introduction of Company



Figure 2.1 Company Logo

(Source: <https://www.fastechbuilders.com/>)

Fast Tech Builders Sdn. Bhd. (Previously known as Chase-Tech Construction) is a company specialize in Civil Engineering & Building Construction works. Fast Tech Builders Sdn. Bhd. had undertaken a lot of construction projects on government and private sector since its incorporation in 1999.



Figure 2.2 : Location of Fast Tech Centre

(Source : <https://www.fastechbuilders.com/>)

Fast Tech Builders Sdn. Bhd. operation is located at No.305, Jalan Perusahaan 2, Taman Bandar Baru Mergong, 05150 Alor Setar, Kedah Darul Aman.

Moreover, this construction company have an excellent track record, sound management, experience capabilities and strong base of technical expertise. As truly, the company in prime position to offer ever more value-added services and to be more responsive to specific client's requirement. They always strive for client's satisfaction.

## **Property Highlights:**

- i. **Luxury Building**  
Building construction is the process of adding structure to real property. The vast majority
  
- ii. **Large Appartment**  
It takes time to adjust to living and working in a new country, and good information can help.
  
- iii. **Safe Accomodation**  
Fire safety requirements in hotels and other accommodations, the management
  
- iv. **Standard House**  
The Passive House Standard stands for quality, comfort and energy efficiency.

The policy of Fast Tech Builders Sdn. Bhd which is to ensure the continued success of the customers by meeting and complying with their requirement as well as the relevant statutory and regulatory requirements. Secondly, the will keep on updating the continued success by continuously strive for improvement through a continuous review and improvement of the system effectiveness. The last one is to ensure that the service from our company will provide cost effective, reliable, high quality and is delivered on time.

## 2.1 Company Profile

Table 2.1 : Corporate Information

1	NAME OF COMPANY	FAST TECH BUILDERS SDN. BHD. (COMPANY NO. 1057780-H)
2	REGISTERED ADDRESS	NO.305, JALAN PERUSAHAAN 2, TAMAN BANDAR BARU MERGONG, 05150 ALOR SETAR, KEDAH.
3	TEL	
4	FAX NUMBER	
5	E-MAIL	fastechbuilders@gmail.com
6	WEBSITE	www.fastechbuilders.com
7	CIDB REGISTRATION	0120141104-KD159635 ( G7 )
8	AUDITORS	POR OOI & CO. (CHARTERED ACCOUNTANTS)
9	PRINCIPAL BANKERS	PUBLIC BANK BERHAD
10	PAID UP SHARE CAPITAL	RM750,000.00
11	AUTHORIZED CAPITAL	RM1,000,000.00



Figure 2.3: Company Registration



Figure 2.4 : Certificate of Registration



## 2.2 Organization Chart

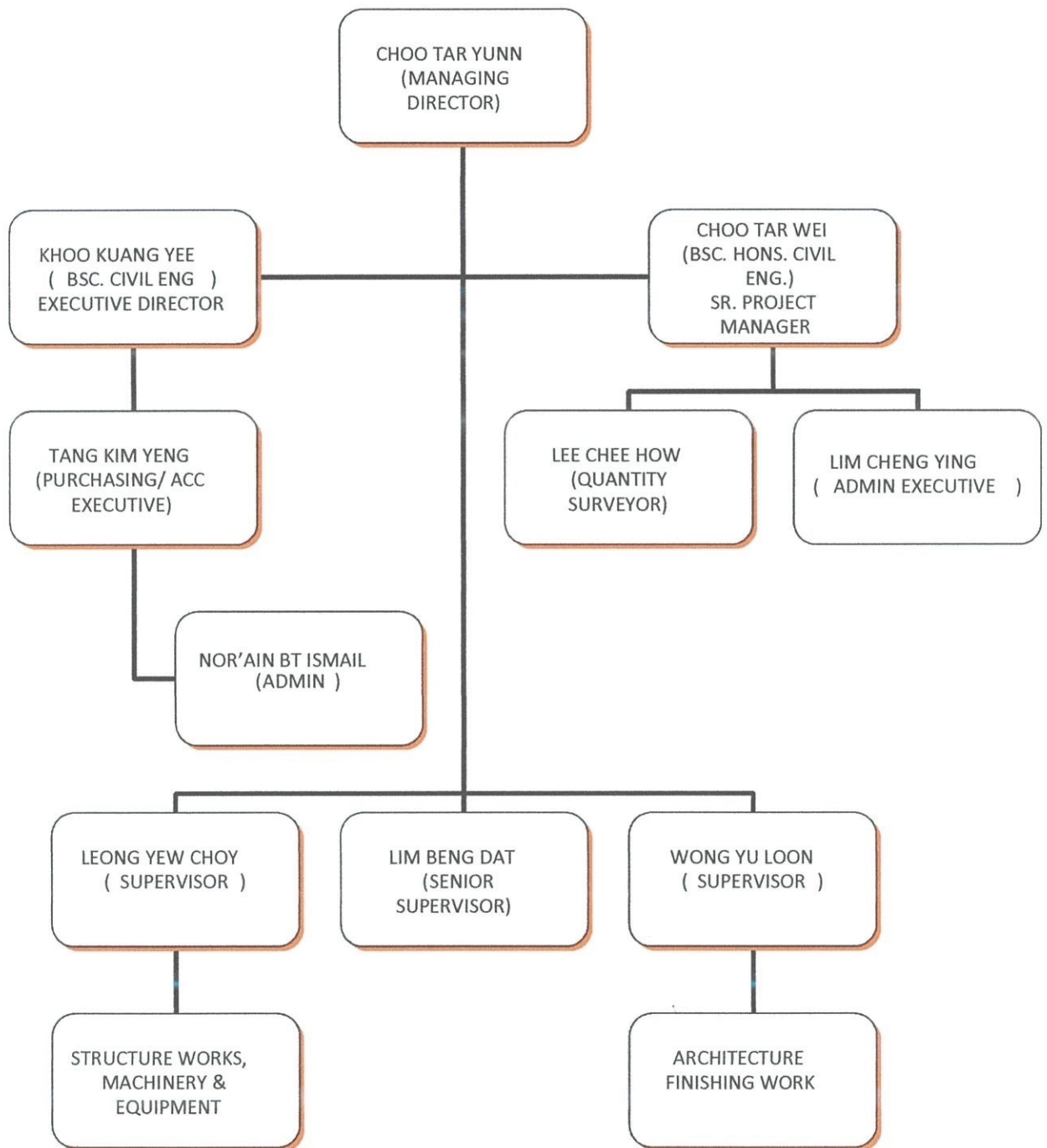


Figure 2.5 : Organization Chart

### 2.3.1 Site Organization Chart

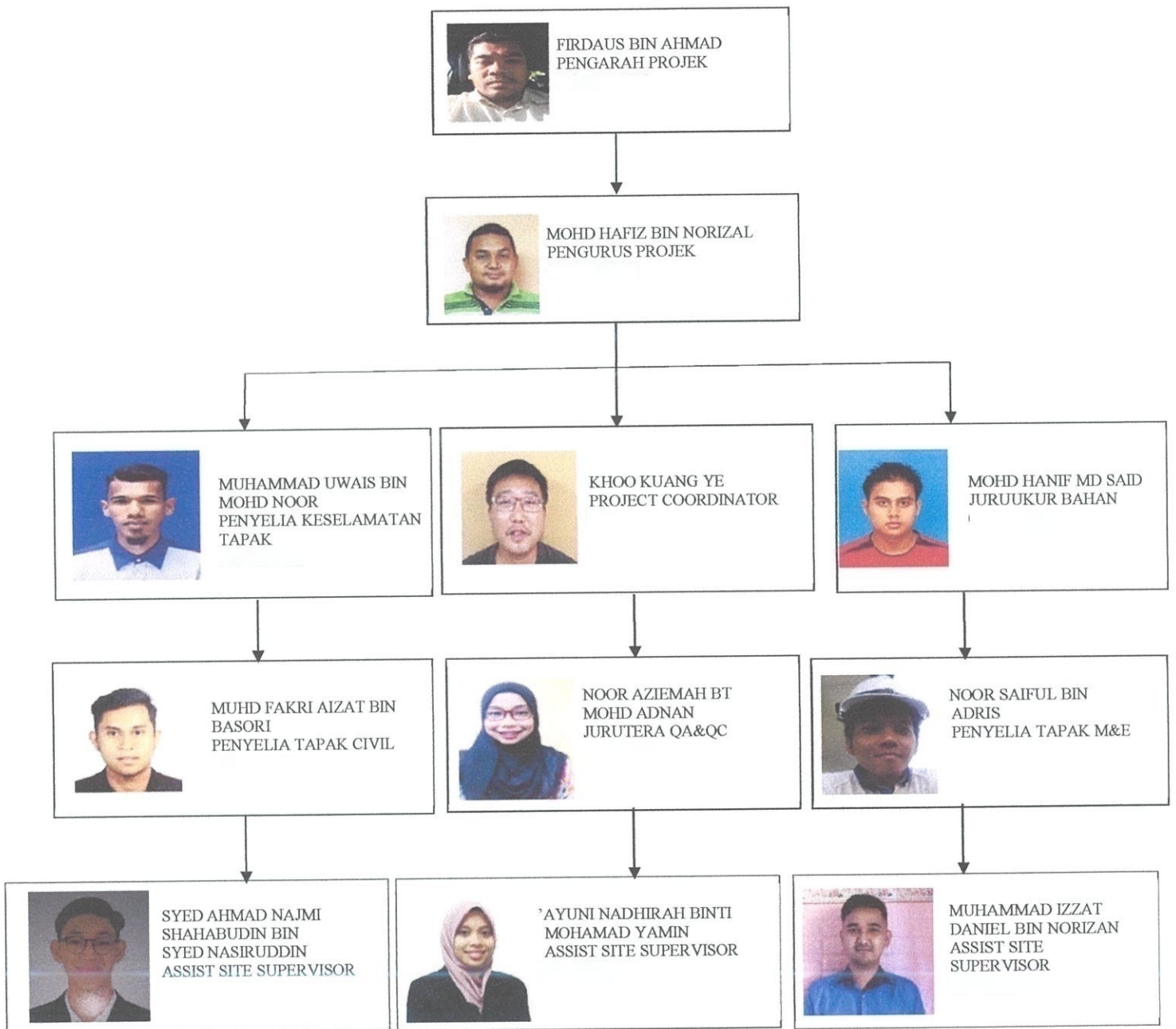


Figure 2.6: Site Organization Chart

### 2.3 List of Project

Table 2.2 : Completed Projects

No	Description Of Works	Client	Main Contractor	Contract value (Labourage only)	Duration
1	Cadangan Merekabentuk, Membina Dan Menyiapkan Projek Perumahan Rakyat 1 Malaysia (PR1MA) Yang Mengandungi 231 Unit Rumah Teres Setingkat Dan Kemudahan Lain Yang Berkaitan Di Atas Lot 8070 MK Padang Siding, Arau, Perlis.	PR1MA	Mega Sasa S/B	RM21,500,000.00	2016 – 2018
2	Cadangan Pembinaan Fakulti Teknologi Kejuruteraan (FTK) Di Universiti Teknikal Malaysia Melaka (UTEM), Hang Tuah Jaya, Durian Tinggal, Melaka.	UTEM/ JKR	Mega Sasa S/B	RM 21,300,00.00	2016 – 2018
3	Cadangan Membina Skim Perumahan Bercampur Di Atas Lot 8695, Mukim Gerik, Daerah Hulu Perak, Perak.	Asia Bina Idaman S/B	SPK Asas S/B	RM3,080,000.00	2017 - 2018

4	<p>Cadangan Pembangunan Bercampur Bagi Fasa 1 (Plot 3) Yang Mengandungi 93 Unit Kedai 3 &amp; 4 Tngkat, 1 Blok Hotel Bajet 5 Tingkat (102 Bilik) Dan 5 Unit Kedai Di Tingkat Bawah Di Atas Lot 5929, Lebuhraya Cassia, Batu Kawan, Mukim 13, Seberang Perai Selatan, Pulau Pinang.</p> <p>-ASPEN VISION CITY-</p>	Aspen vision city S/B	Daya CMT S/B	RM15,668,727.25	2017 - 2018
5	<p>Pembinaan Sekolah Daif Menggunakan Kaedah IBS Di Semenanjung Malaysia Untuk Projek Pembinaan:</p> <p>1) 4 Bilik Darjah SMK Kuala Pegang, Baling, Kedah.</p> <p>2) 4 Bilik Darjah SK Penghulu Abu Bakar Baling, Kedah.</p> <p>3) 6 Bilik Darjah SK Kampong Kota Bukit, Sik Kedah.</p> <p>Untuk Tetuan Kementerian Pendidikan Malaysia.</p>	Kementerian Pendidikan Malaysia	Innokoperat S/B	RM2,142,000.00	Completed

## 2.4.2 Project in Progress

Table 2.3 : List of project in progress.

6	Cadangan Meroboh Dan Membina Semula Rumah Tamu 4 Tingkat (60 Bilik), Dan Sebuah Pencawang Elektrik Di Atas Lot 4050, Sebahagian Lot 4049 Dan 4492, Jalan Denai Intan, Mukim Durian Sebatang, Daerah Hilir Perak, Teluk ntan, Perak Darul Ridzuan.	JKR	Edifice Builders Sdn.Bhd	RM5,260,615.70	1/5/2018 – 2019
7	Pembinaan Mahkamah Baharu Kangar, Perlis.	JKR	SPK Asas Sdn Bhd	RM3,129,073.40	5/11/2018 – (Still in Progress)
8	Menaiktaraf Sekolah Menengah Vokasional Kulim Kepada Kolej Vokasional Kulim, Kedah Darul Aman.	Kementerian Pendidikan Malaysia	Vertice Construction Sdn. Bhd.	RM8,964,178.67	2019 - (Still in Progress)

## CHAPTER 3.0

### CASE STUDY

#### 3.1 Introduction to Case Study

Piling work was located at Block D known as Automotive Workshop. Total for the piling point of block D was 96 points. The foundation used in this construction is the piling foundation. Piles are deep foundations that are being driven into the ground in situ which involves the process of excavation and drilling.

Driven precast concrete piles are constructed by hammering the piles into the soil to a depth greater than 40m by an adjustable hydraulic or diesel hammer. Driven precast concrete piles are widely used because of their versatility and suitability for most ground conditions. These piles can be used for the foundation of all types of engineering structures under nearly every soil condition.

These pile foundations can be made out of pre-stressed concrete, reinforced concrete, steel and timber. For this construction site, the reinforced concrete pile used for the foundation.

The construction site had chosen the pile foundation due to the height of the building constructed which consists of 2 level of floor. Pile foundations are deep foundations. Piles are normally used when the subsoil condition is weak, because it provides great load bearing capacity. This type of foundation is the basis on which the load from the building is carried and distributed to the appropriate level in the ground through poles known as pile.



Figure 3.1: Location of piling work

### **3.2 To identify the advantages and disadvantages by using precast concrete pile**

Piling works is one of the hardest tasks and requires a high degree of patience as every pile construction we have to be careful because if the building is built too big and too high any wind resistance will negatively impact the building and the likelihood of the collapse, crack or building will not be safe in the long run. There are few advantages and disadvantages of precast concrete piles.

The advantages of precast concrete reinforcement used in the pile is not liable to change its place or get disturbed. The defects in pile can be easily identified after the removal of forms, and these defects such as presence of cavity or hole can be repaired before driving the pile. The cost of manufacturing will be less, as a large number of piles are manufactured at a time. Precast is the process through which reducing the completion time and also can be installed in a very large area.

The pile foundation helps to increase the factor of safety of heavy load structures or buildings. Precast concrete piles are highly resistant to biological and chemical actions of the sub soil. Better quality control can be implemented as compared to bored cast in situ piles. These piles can be constructed in various cross-sectional shapes such as circular, octagonal or square. Precast concrete is known for its high-quality and durability. It can easily withstand the elements and go through years and years of wear and tear while still being just as strong and resilient as it was the day it was cured.

Then, for disadvantages for precast concrete piles with is these piles are usually very heavy A pile can be damaged quickly by driving through stones and boulders. For embedding these piles in field heavy pile driving equipment is required. These piles are costly as extra reinforcement is required to bear handling and driving stresses.

The length of the pile is restricted since it depends upon the transport facility. Once constructed, it is not possible to increase the length of the pile as per the site demand. If the pile is found to be too long, during driving, it is difficult and uneconomical to cut. Also cutting of extra length results in the wastage of material. Lastly, driving these piles created a lot of noise pollution.

It is my suggestion that the pile should improve the quality of its work and that the use of the tools should be emphasized by the contractor so that any construction or piling plant can be carried out without any hassle and that the building to be built will not have a negative impact in the future.



Table 2.4 : Factor of selecting piles

No	Factor	
1.	Load and Pile Capability	Concrete pile and steel have higher capacity compared to wood. Wood pile capacity is limited to 300 kN and limited wood stress allowed. Concrete and steel pile capabilities determined by the allowable stress, the size of the pile cut. The pile reached the maximum capacity if the ground provides a support enough.
2.	Soil condition	The type and condition of the land are factors that influence the selection type of pile where characteristics of soil strength such as shear strength, compressibility and sedimentation as well as reinforcement as well as other engineering properties.
3.	Strength of Material	<p>a) The rotten wood pile can be avoided by preservation</p> <p>b) Stainless steel pile in a chemical environment.</p> <p>c) Concrete pile is damaged by acid.</p>
4.	Location and site position	Structures built at sea, inland and in the basement have different pile to withstand every type and force applied.

5.	Cost	<p>Cost is one of the factors of the pile for construction. Expenses for pile installations are a major issue in construction due to during the pile-up process. There are unexpected things that will happen apply. For example, uncertainty over hard soil depth will affects the time and productivity of the day of operation. This indirectly will affect the cost of a project</p>
6.	Size of Pile	<p>Pile length cannot be set. In most cases, the estimated length varies greatly with the actual length, especially in non-limestone sites. The length of the pile can be adjusted to suit the site's use.</p>
7.	Structure of building	<p>Pile are used for supporting the structure and selection of the appropriate pile should be done accordingly  type of building structure. For example, for the construction of a building structure large it requires the use of large diameter pile for Avoid any structural movement after the building is completed (Fleming,2008)</p>

### 3.3 To investigate precast concrete pile construction procedure of piling work.

The installation process and methods of pile foundations are equally important factors as of the design process. Pile foundation installation methods are by pile hammer. If installation is to be carried out using pile-hammer, then the following factors should be taken in to consideration with is the size and the weight of the pile.

Then, driving resistance which has to be overcome to achieve the design penetration. Available space and headroom on the site also the availability of cranes also the factors that should be taken. The noise restrictions which may be in force in the locality.

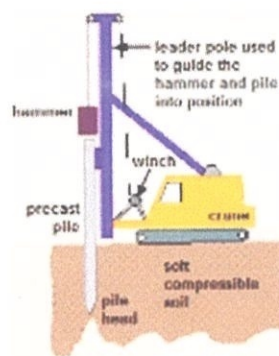


Figure 3.1 : Pile Driving Rig

If installation is to be carried out using pile-hammer, then the following factors should be taken in to consideration:

- the size and the weight of the pile
- the driving resistance which has to be overcome to achieve the design penetration
- the available space and head room on the site
- the availability of cranes
- the noise restrictions which may be in force in the locality.

## Plant and Machinery

### 1. Diesel Drop Hammers Driving

A hammer with approximately the weight of the pile is raised a suitable height in a guide and released to strike the pile head. This is a simple form of hammer used in conjunction with light frames and test piling, where it may be uneconomical to bring a steam boiler or compressor on to a site to drive very limited number of piles.



Figure 3.2: Piling Machine

## Material

### 2. Concrete pile

Precast Concrete Piles are normally of square section for short and moderate lengths, but hexagonal, octagonal or circular piles are usually preferred for long length. (MJ Tomlinson, 1995)

Supply, deliver and unload on site precast concrete piles as specified to :

- a) 200mm x 200mm initial piles 6.00m long including cast iron pile shoe
- b) 200mm x 200mm extension piles 6.00m long
- c) 200mm x 200mm extension piles 3.00m long.



Figure 3.3 : Initial and extension of concrete pile

There are following process of piling work for precast concrete piles:

i) **Setting Out/Levelling**

The surveyor shall establish all control points (through primary datum levels) in respect to the center lines/grid lines/cutting lines, install and maintain the reference marks, benchmarks etc. and maintain them as long as required for setting out, establishing Bench Marks and other reference marks



Figure 3.4 : Levelling

The machinery and tools that had been used are measuring tape which is to measure the distance between the concrete pile to the another point of concrete pile. Next, the tripod and the theodolite as shown in the figure 3.4 are used to check level of the site.



Figure 3.5 : Piling Point

The setting out of pile points, survey station and TBMs are prior were established near to site location. These stations are well protected against disturbance according to the station marking requirements. The areas where the pile is to be planted will be marked with a steel rode with a red mark on it so that it can be seen remotely shown at figure.

## ii) Pile Marking

Marking of the length of pile by every foot of the precast pile with a paint stick prior to lifting it with is make it easier to record the reading of the piling works.



Figure 3.6 : Marking of concrete pile

## iii) Pile Lifting To Piling Machine

Once all the locations are ready, the pile machine can be started by moving the piling machine to the pile. Lifting and fitting pile into the piling machine and placement of pile onto piling point.



Figure 3.7: Pile Lifting into piling point

#### iv) **Pile Positioning**

Once the pile is lifted to the pile frame, make sure the pile is in the correct position before being driven. Place precast concrete pile on the designated location. The bottom of the puddle must be accurate with the note that has been made. It is used to measure the strength of the pile.



Figure 3.8 : Pile Positioning onto the piling point

#### v) **Pile Joining by Welding Process**

Welding process of precast concrete foundation piles. Welding process of the precast reinforced concrete piles (pile connection). Joining of piles with welding when insufficient pile length occurs.

The pile is driven into the resistive soil layer to a depth equal to one time the pile diameter with control of driving achieved by measuring the set. Repeat all the step above for the 95 point.



Figure 3.9 : Welding Process



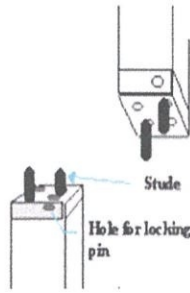


Figure 3.10 : Concrete pile connecting detail

Sources: (<http://mtp.itd.co.th/ITD-CP/data/PileFoundationDesign.pdf>)

**vi) Record the data**

After start the blow, record the number of blows per foot and force the pile into the ground with an impact pile driving hammer. When the pile is ready to be pressed, every blow for each foot marked should be recorded in the form data provided.



Figure 3.11: Hammering pile into ground

Figure 3.12 : Form for piling record

### 3.4 To determine the problem and solution by using precast concrete pile.

There are several issues that may be encountered during pile foundation construction.

#### i. Cracks Piles

Cracks piles can affect the quality and reliability of piles. Cracks might be a results of poor construction precast piles, or can be a results of damages during transportation, and installation. Pile integrity can provide valuable information about the presence of such cracks in the pile.



Figure 3.13 : Cracks Pile

There are number of factors that make the driven pile to suffer deterioration and damages under working loads. For example, improper concrete placement method that used for concrete in the core of driven shaft, lifting of pile due to ground heave, inadequate concrete in bulb for bulb ended bored and driven pile, wrong space employed, and insufficient driven resistance.

These detrimental factors may be eliminated by checking volume of concrete placed, hammer drop and blows per meter, designated spacer type, and clear method of construction.

## ii Piles Are Driving Significantly Deeper Than Estimated

When piles are driving considerably deeper than expected, it may be because soil resistance at the time of driving is lower than anticipated, or because the driving system performance is better than anticipated. Perform restrike tests after an appropriate waiting period to evaluate soil strength changes.



Figure 3.14 After Pile Process

If the ultimate capacity based on restrike blow count is still low, check the drive system performance and restrike capacity, using dynamic measurements.

If the drive system performance is as assumed and restrike capacity is low, the soil conditions are probably weaker than anticipated. Foundation piles will probably need to be driven deeper than originally estimated, or additional piles will be required to support the load.

## CHAPTER 4.0

### 4.1 Conclusion

As the conclusion, concrete pile suitable for high-rise buildings is one of the substrates known to serve as a support to the stability of high-rise structures in addition to the strength of the framework itself. Pile foundations can withstand high loads that are usually not borne by soft soil structures and have low bearing capacity basic failure will cause erosion and will affect other structures and internal services (pipes, cables, etc.).

The choice of pile type depends on the amount of load, soil condition and cost involved. From this observation, the procedure of pile foundation, machineries used and problems also solution had shown the processes of precast concrete pile construction. The data and result can easily be obtained by observed, interviews, document reviews

Hence, the objectives of the report have been gained completely which is to identify the advantages and disadvantages of using pile foundation and the procedures of installing the piling, to determine the problems occurred during the installation of piling and also to determine the solutions taken to solve the problems relating to the piling construction.

The choice of pile use is not just about the type and the size of the land, building structure, environment and site location need to be taken into account to avoid any problems with the environment and society. Therefore, pile work is often categorized as 'Provisional' where refinement will be made upon completion of work. Based on these facts, supervision was previously conducted, only piling R.C. steel and wood will be touched as the planting techniques are the same. It can be concluded that, this study was able to identify certain problems and the issue encountered with technical and management solutions.

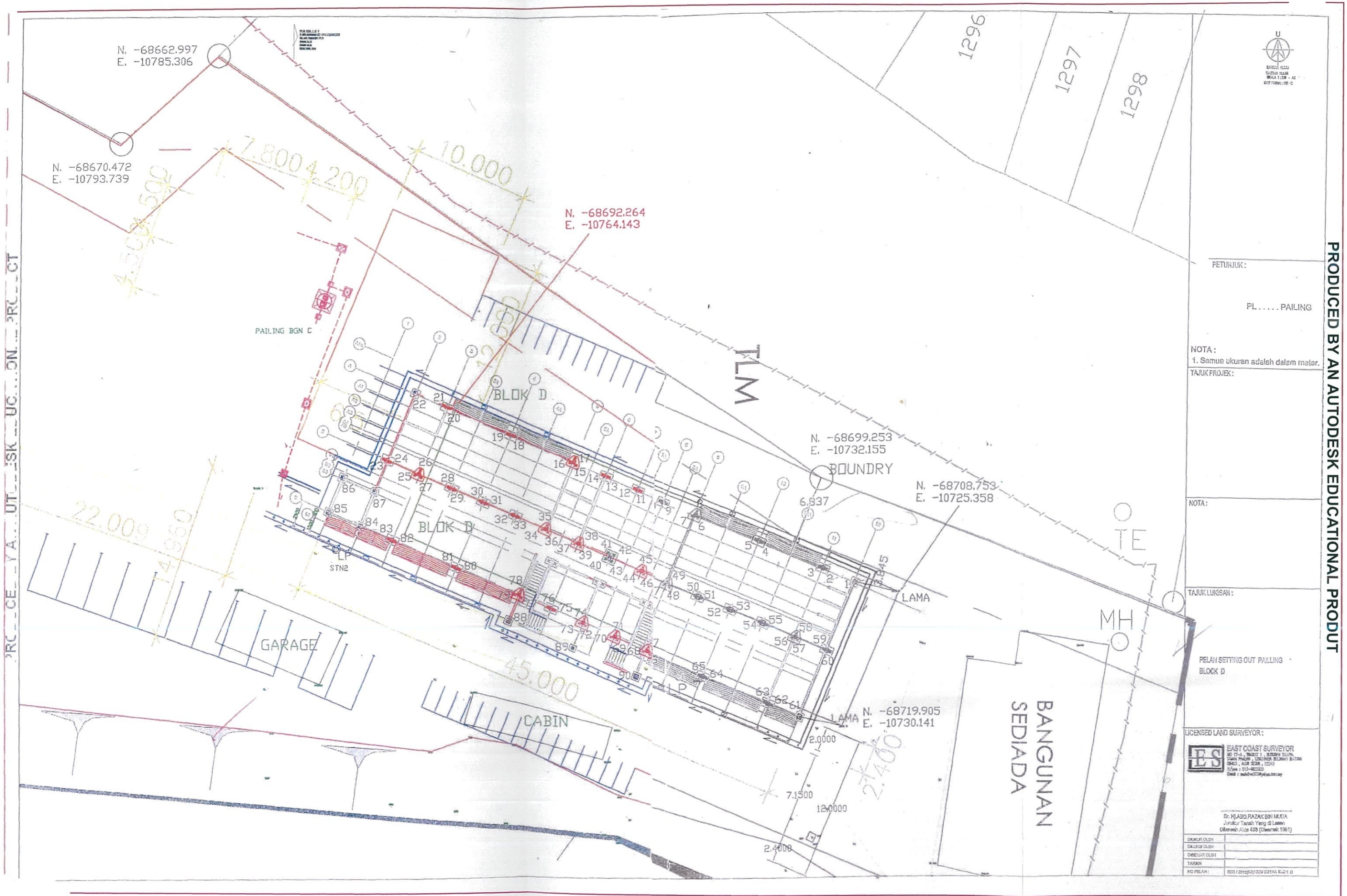
## REFERENCES

### Books

1. Tomlinson, M.J. (2014). Pile Design and Construction Practice. 6<sup>th</sup> ed. Sound Parkway NW, Suite 300.
2. Fleming, K., Weltman, A., Randolph, M. dan Elson, K. (2008). Piling Engineering. (3rd ed.). London and New York: Taylor & Francis.
3. M.J Tomlinson and R.Boorman (1986,1995). Foundation Design and Construction

### Web Site

1. <http://mtp.itd.co.th/ITD-CP/data/PileFoundationDesign.pdf>
2. (<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbmxrZWp1cnV0ZXJhYW5hd2FtfGd4OjQ2YjAyYTEzM2UwNTg2MmY>)



FETUJUK:

PL . . . . PAILING

NOTA:

1. Semua ukuran adalah dalam meter.


TAJUK PROJEK:

NOTA:

TAJUK LUKISAN:

PELAH SETTING OUT PAILING  
BLOCK D

LICENSED LAND SURVEYOR:


 EAST COAST SURVEYOR  
 30-17-0, TRAJEK 1, BANGSA RUMAH  
 25000 KUALA LUMPUR, MALAYSIA  
 03-4331-1111  
 03-4331-1112  
 03-4331-1113  
 03-4331-1114

Dr. HAJI ABD RAZAK BIN MUDA  
 Jurutera Tanah Yang Di Llesen  
 Di bawah Akta 429 (Disemak 1961)

DENUT OLSH	
DALANG OLSH	
DISEKOL OLSH	
TARSIK	
NO PELAH:	B09/201601000000000000000000

PRC...CE...YA...UT...ISK...UC...ON...PRC...CT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

SUMMARY PILE

BLOCK D

Total Pile Point : 96 Point

NO	DEPTH (m)
1	20.7
2	18.9
3	19.5
4	18.6
5	18.9
6	20.7
7	20.7
8	21
9	20.1
10	19.8
11	20.1
12	21
13	19.8
14	19.2
15	19.5
16	19.2
17	19.8
18	19.2
19	18.6
20	19.5
21	18.6
22	18.9
23	19.2
24	18.9
25	18.6
26	19.5
27	19.5
28	19.8
29	19.8
30	20.4
31	20.7
32	21
33	21
34	21
35	18.9
36	20.7
37	20.1
38	19.5
39	16.8
40	19.5
Total	787.2

NO	DEPTH (m)
41	19.2
42	18.6
43	19.5
44	21
45	20.7
46	20.4
47	20.4
48	20.7
49	20.7
50	20.4
51	20.4
52	18.3
53	19.2
54	18.6
55	19.5
56	20.7
57	18.9
58	19.2
59	21
60	20.4
61	18.6
62	18.3
63	18.9
64	20.1
65	20.7
66	19.8
67	20.4
68	20.1
69	20.4
70	20.7
71	20.1
72	19.8
73	19.2
74	20.1
75	19.2
76	19.5
77	19.8
78	18.6
79	19.8
80	18.9
Total	790.8

NO	DEPTH (m)
81	20.1
82	19.5
83	19.2
84	18.9
85	20.1
86	19.5
87	20.1
88	19.2
89	19.5
90	19.5
91	19.5
92	20.1
93	21
94	20.4
95	20.7
96	19.2
Total	316.5

TOTAL DEPTH (m)	1,894.50
-----------------	----------

6m Starter Pile	96 nos
6m Extension Pile	192 nos
3m Extension Pile	96 nos
Weld	288 nos

RUDY AMIRUL BIN RAMLI  
 CLERK OF WORK  
 TASA CONSULTANT





MENAIKTARAF SEKOLAH MENENGAH VOKASIONAL KULIM KEPADA  
KOLEJ VOKASIONAL KULIM KEDAH DARUL AMAN



KEMENTERIAN  
PENDIDIKAN  
MALAYSIA

PILE DRIVING RECORD

Form : EVSB/PDR/

Structural Detail	Hammer Detail	Pile Detail	
Client :	Type :	Date : 19/9/2019	C.O.L :
Location :	Model :	Pile Ref :	Pile Used :
	Weight :	Size :	Set :
	Drop :	Penet :	Piler :

Pile Ref :	Start	1 <sup>st</sup> Ext	2 <sup>nd</sup> Ext	3 <sup>rd</sup> Ext	4 <sup>th</sup> Ext
Serial No :	.....				
Date Cast :	.....				

Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow
0.0 - 0.3		12.0 - 12.3	21	24.0 - 24.3		36.0 - 36.3	
0.3 - 0.6		12.3 - 12.6	22	24.3 - 24.6		36.3 - 36.6	
0.6 - 0.9		12.6 - 12.9	23	24.6 - 24.9		36.6 - 36.9	
0.9 - 1.2		12.9 - 13.2	24	24.9 - 25.2		36.9 - 37.2	
1.2 - 1.5	1	13.2 - 13.5	28	25.2 - 25.5		37.2 - 37.5	
1.5 - 1.8	2	13.5 - 13.8	25	25.5 - 25.8		37.5 - 37.8	
1.8 - 2.1	2	13.8 - 14.1	25	25.8 - 26.1		37.8 - 38.1	
2.1 - 2.4	4	14.1 - 14.4	26	26.1 - 26.4		38.1 - 38.4	
2.4 - 2.7	5	14.4 - 14.7	29	26.4 - 26.7		38.4 - 38.7	
2.7 - 3.0	7	14.7 - 15.0	27	26.7 - 27.0		38.7 - 39.0	
3.0 - 3.3	9	15.0 - 15.3	28	27.0 - 27.3		39.0 - 39.3	
3.3 - 3.6	9	15.3 - 15.6	28	27.3 - 27.6		39.3 - 39.6	
3.6 - 3.9	9	15.6 - 15.9	29	27.6 - 27.9		39.6 - 39.9	
3.9 - 4.2	5	15.9 - 16.2	29	27.9 - 28.2		39.9 - 40.2	
4.2 - 4.5	5	16.2 - 16.5	29				
4.5 - 4.8	7	16.5 - 16.8	29				
4.8 - 5.1	7	16.8 - 17.1	30				
5.1 - 5.4	8	17.1 - 17.4	31				
5.4 - 5.7	8	17.4 - 17.7	33				
5.7 - 6.0	10	17.7 - 18.0	34				
6.0 - 6.3	10	18.0 - 18.3	36				
6.3 - 6.6	11	18.3 - 18.6	38				
6.6 - 6.9	11	18.6 - 18.9	42				
6.9 - 7.2	4	18.9 - 19.2	44				
7.2 - 7.5	4	19.2 - 19.5	46				
7.5 - 7.8	5	19.5 - 19.8	48				
7.8 - 8.1	7	19.8 - 20.1	49				
8.1 - 8.4	6	20.1 - 20.4	47				
8.4 - 8.7	8	20.4 - 20.7	50				
8.7 - 9.0	8	20.7 - 21.0					
9.0 - 9.3	10	21.0 - 21.3					
9.3 - 9.6	10	21.3 - 21.6					
9.6 - 9.9	11	21.6 - 21.9					
9.9 - 10.2	12	21.9 - 22.2					
10.2 - 10.5	12	22.2 - 22.5					
10.5 - 10.8	13	22.5 - 22.8					
10.8 - 11.1	15	22.8 - 23.1		34.8 - 35.1			
11.1 - 11.4	16	23.1 - 23.4		35.1 - 35.4		47.1 - 47.4	
11.4 - 11.7	18	23.4 - 23.7		35.4 - 35.7		47.4 - 47.7	
11.7 - 12.0	20	23.7 - 24.0		35.7 - 36.0		47.7 - 48.0	

Recorded by:

Verified by:

Approved by:



MENAIKTARAF SEKOLAH MENENGAH VOKASIONAL KULIM KEPADA  
KOLEJ VOKASIONAL KULIM KEDAH DARUL AMAN



KEMENTERIAN  
PENDIDIKAN  
MALAYSIA

PILE DRIVING RECORD

Form : EVSB/PDR/

Structural Detail		Hammer Detail		File Detail				
Client :		Type :	Date :	21/9/19		C.O.L :		
Location :		Model :	Pile Ref :			Pile Used :		
		Weight :	Size :			Set :		
		Drop :	Penet :			Piler :		
Pile Ref :	2	Start	1 <sup>st</sup> Ext	2 <sup>nd</sup> Ext	3 <sup>rd</sup> Ext	4 <sup>th</sup> Ext		
Serial No :	.....							
Date Cast :	.....							
Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	
0.0 - 0.3	/	12.0 - 12.3	24	24.0 - 24.3		36.0 - 36.3		
0.3 - 0.6		12.3 - 12.6	26	24.3 - 24.6		36.3 - 36.6		
0.6 - 0.9		12.6 - 12.9	27	24.6 - 24.9		36.6 - 36.9		
0.9 - 1.2		12.9 - 13.2	24	24.9 - 25.2		36.9 - 37.2		
1.2 - 1.5		13.2 - 13.5	<del>28</del> 27	25.2 - 25.5		37.2 - 37.5		
1.5 - 1.8		13.5 - 13.8	22	25.5 - 25.8		37.5 - 37.8		
1.8 - 2.1		13.8 - 14.1	24	25.8 - 26.1		37.8 - 38.1		
2.1 - 2.4		2	14.1 - 14.4	26	26.1 - 26.4		38.1 - 38.4	
2.4 - 2.7		4	14.4 - 14.7	26	26.4 - 26.7		38.4 - 38.7	
2.7 - 3.0		3	14.7 - 15.0	27	26.7 - 27.0		38.7 - 39.0	
3.0 - 3.3	5	15.0 - 15.3	30	27.0 - 27.3		39.0 - 39.3		
3.3 - 3.6	6	15.3 - 15.6	31	27.3 - 27.6		39.3 - 39.6		
3.6 - 3.9	4	15.6 - 15.9	26	27.6 - 27.9		39.6 - 39.9		
3.9 - 4.2	5	15.9 - 16.2	26	27.9 - 28.2		39.9 - 40.2		
4.2 - 4.5	5	16.2 - 16.5	27	28.2 - 28.5		40.2 - 40.5		
4.5 - 4.8	7	16.5 - 16.8	30	28.5 - 28.8		40.5 - 40.8		
4.8 - 5.1	8	16.8 - 17.1	31	28.8 - 29.1				
5.1 - 5.4	10	17.1 - 17.4	28					
5.4 - 5.7	10	17.4 - 17.7	29					
5.7 - 6.0	12	17.7 - 18.0	3					
6.0 - 6.3	13	18.0 - 18.3	32					
6.3 - 6.6	14	18.3 - 18.6	40					
6.6 - 6.9	18	18.6 - 18.9	41					
6.9 - 7.2	19	18.9 - 19.2						
7.2 - 7.5	17	19.2 - 19.5						
7.5 - 7.8	16	19.5 - 19.8						
7.8 - 8.1	15	19.8 - 20.1						
8.1 - 8.4	16	20.1 - 20.4						
8.4 - 8.7	14	20.4 - 20.7						
8.7 - 9.0	12	20.7 - 21.0						
9.0 - 9.3	14	21.0 - 21.3						
9.3 - 9.6	15	21.3 - 21.6						
9.6 - 9.9	20	21.6 - 21.9						
9.9 - 10.2	21	21.9 - 22.2						
10.2 - 10.5	14	22.2 - 22.5						
10.5 - 10.8	15	22.5 - 22.8						
10.8 - 11.1	16	22.8 - 23.1						
11.1 - 11.4	21	23.1 - 23.4						
11.4 - 11.7	22	23.4 - 23.7		35.4 - 35.7		47.4 - 47.7		
11.7 - 12.0	23	23.7 - 24.0		35.7 - 36.0		47.7 - 48.0		

Recorded by:

Verified by:

Approved by:



MENAIKTARAF SEKOLAH MENENGAH VOKASIONAL KULIM KEPADA  
KOLEJ VOKASIONAL KULIM KEDAH DARUL AMAN



KEMENTERIAN  
PENDIDIKAN  
MALAYSIA

PILE DRIVING RECORD

Form : EVSB/PDR/

Structural Detail		Hammer Detail		File Detail			
Client :		Type :		Date : 21/9/19		C.O.L :	
Location :		Model :		Pile Ref :		Pile Used :	
		Weight :		Size :		Set :	
		Drop :		Penet :		Piler :	
Pile Ref : 3		Start		1 <sup>st</sup> Ext		2 <sup>nd</sup> Ext	
Serial No : .....		3		.....		.....	
Date Cast : .....		.....		.....		.....	
Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow
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0.3 - 0.6		12.3 - 12.6	17	24.3 - 24.6		36.3 - 36.6	
0.6 - 0.9		12.6 - 12.9	18	24.6 - 24.9		36.6 - 36.9	
0.9 - 1.2		12.9 - 13.2	19	24.9 - 25.2		36.9 - 37.2	
1.2 - 1.5		13.2 - 13.5	19	25.2 - 25.5		37.2 - 37.5	
1.5 - 1.8		13.5 - 13.8	21	25.5 - 25.8		37.5 - 37.8	
1.8 - 2.1		13.8 - 14.1	23	25.8 - 26.1		37.8 - 38.1	
2.1 - 2.4		14.1 - 14.4	24	26.1 - 26.4		38.1 - 38.4	
2.4 - 2.7		14.4 - 14.7	26	26.4 - 26.7		38.4 - 38.7	
2.7 - 3.0		14.7 - 15.0	26	26.7 - 27.0		38.7 - 39.0	
3.0 - 3.3		15.0 - 15.3	27	27.0 - 27.3		39.0 - 39.3	
3.3 - 3.6	3	15.3 - 15.6	18	27.3 - 27.6		39.3 - 39.6	
3.6 - 3.9	2	15.6 - 15.9	21	27.6 - 27.9		39.6 - 39.9	
3.9 - 4.2	4	15.9 - 16.2	23	27.9 - 28.2		39.9 - 40.2	
4.2 - 4.5	5	16.2 - 16.5	24	28.2 - 28.5		40.2 - 40.5	
4.5 - 4.8	5	16.5 - 16.8	25	28.5 - 28.8		40.5 - 40.8	
4.8 - 5.1	8	16.8 - 17.1	27	28.8 - 29.1		40.8 - 41.1	
5.1 - 5.4	10	17.1 - 17.4	28	29.1 - 29.4		41.1 - 41.4	
5.4 - 5.7	10	17.4 - 17.7	31	29.4 - 29.7		41.4 - 41.7	
5.7 - 6.0	11	17.7 - 18.0	31				
6.0 - 6.3	13	18.0 - 18.3	36				
6.3 - 6.6	14	18.3 - 18.6	26				
6.6 - 6.9	15	18.6 - 18.9	27				
6.9 - 7.2	16	18.9 - 19.2	30				
7.2 - 7.5	16	19.2 - 19.5	49				
7.5 - 7.8	14	19.5 - 19.8					
7.8 - 8.1	12	19.8 - 20.1					
8.1 - 8.4	18	20.1 - 20.4					
8.4 - 8.7	17	20.4 - 20.7					
8.7 - 9.0	16	20.7 - 21.0					
9.0 - 9.3	16	21.0 - 21.3					
9.3 - 9.6	17	21.3 - 21.6					
9.6 - 9.9	18	21.6 - 21.9					
9.9 - 10.2	19	21.9 - 22.2					
10.2 - 10.5	19	22.2 - 22.5					
10.5 - 10.8	20	22.5 - 22.8					
10.8 - 11.1	21	22.8 - 23.1					
11.1 - 11.4	22	23.1 - 23.4					
11.4 - 11.7	23	23.4 - 23.7					
11.7 - 12.0	19	23.7 - 24.0					

Recorded by:

Verified by:

RUL



MENAIKTARAF SEKOLAH MENENGAH VOKASIONAL KULIM KEPADA  
KOLEJ VOKASIONAL KULIM KEDAH DARUL AMAN



KEMENTERIAN  
PENDIDIKAN  
MALAYSIA

PILE DRIVING RECORD

Form : EVSB/PDR/

Structural Detail	Hammer Detail	Pile Detail	
Client :	Type :	Date : 21/9/19	C.O.L :
Location :	Model :	Pile Ref :	Pile Used :
	Weight :	Size :	Set :
	Drop :	Penet :	Piler :

Pile Ref :	Start	1 <sup>st</sup> Ext	2 <sup>nd</sup> Ext	3 <sup>rd</sup> Ext	4 <sup>th</sup> Ext
Serial No :					
Date Cast :					

Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow
0.0 - 0.3		12.0 - 12.3	21	24.0 - 24.3		36.0 - 36.3	
0.3 - 0.6		12.3 - 12.6	27	24.3 - 24.6		36.3 - 36.6	
0.6 - 0.9		12.6 - 12.9	23	24.6 - 24.9		36.6 - 36.9	
0.9 - 1.2		12.9 - 13.2	24	24.9 - 25.2		36.9 - 37.2	
1.2 - 1.5		13.2 - 13.5	28	25.2 - 25.5		37.2 - 37.5	
1.5 - 1.8		13.5 - 13.8	29	25.5 - 25.8		37.5 - 37.8	
1.8 - 2.1		13.8 - 14.1	20	25.8 - 26.1		37.8 - 38.1	
2.1 - 2.4		14.1 - 14.4	26	26.1 - 26.4		38.1 - 38.4	
2.4 - 2.7		14.4 - 14.7	19	26.4 - 26.7		38.4 - 38.7	
2.7 - 3.0	25	14.7 - 15.0	20	26.7 - 27.0		38.7 - 39.0	
3.0 - 3.3	28	15.0 - 15.3	23	27.0 - 27.3		39.0 - 39.3	
3.3 - 3.6	28	15.3 - 15.6	26				
3.6 - 3.9	11	15.6 - 15.9	27				
3.9 - 4.2	13	15.9 - 16.2	29				
4.2 - 4.5	14	16.2 - 16.5	31				
4.5 - 4.8	8	16.5 - 16.8	32				
4.8 - 5.1	9	16.8 - 17.1	31				
5.1 - 5.4	10	17.1 - 17.4	30				
5.4 - 5.7	10	17.4 - 17.7	35				
5.7 - 6.0	14	17.7 - 18.0	36				
6.0 - 6.3	15	18.0 - 18.3	45				
6.3 - 6.6	17	18.3 - 18.6	40				
6.6 - 6.9	16	18.6 - 18.9					
6.9 - 7.2	11	18.9 - 19.2					
7.2 - 7.5	12	19.2 - 19.5					
7.5 - 7.8	14	19.5 - 19.8					
7.8 - 8.1	14	19.8 - 20.1					
8.1 - 8.4	18	20.1 - 20.4					
8.4 - 8.7	19	20.4 - 20.7					
8.7 - 9.0	22	20.7 - 21.0					
9.0 - 9.3	19	21.0 - 21.3					
9.3 - 9.6	23	21.3 - 21.6					
9.6 - 9.9	24	21.6 - 21.9					
9.9 - 10.2	28	21.9 - 22.2					
10.2 - 10.5	24	22.2 - 22.5		34.2 - 34.5		45.9 - 46.2	
10.5 - 10.8	29	22.5 - 22.8		34.5 - 34.8		46.2 - 46.5	
10.8 - 11.1	30	22.8 - 23.1		34.8 - 35.1		46.5 - 46.8	
11.1 - 11.4	31	23.1 - 23.4		35.1 - 35.4		46.8 - 47.1	
11.4 - 11.7	28	23.4 - 23.7		35.4 - 35.7		47.1 - 47.4	
11.7 - 12.0	26	23.7 - 24.0		35.7 - 36.0		47.4 - 47.7	
						47.7 - 48.0	

Recorded by:

Verified by:

Approved by:



MENAIKTARAF SEKOLAH MENENGAH VOKASIONAL KULIM KEPADA  
KOLEJ VOKASIONAL KULIM KEDAH DARUL AMAN



PILE DRIVING RECORD

Form : EVSB/PDR/

Structural Detail

Hammer Detail

Pile Detail

Client :  
Location :  
Type :  
Model :  
Weight :  
Drop :  
Date : 21/09/19  
Pile Ref :  
Size :  
Penet :  
C.O.L :  
Pile Used :  
Set :  
Piler :

Pile Ref : 5 Start 1<sup>st</sup> Ext 2<sup>nd</sup> Ext 3<sup>rd</sup> Ext 4<sup>th</sup> Ext

Serial No :  
Date Cast :

Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow	Dept (m)	Nos of Blow
0.0 - 0.3		12.0 - 12.3	21	24.0 - 24.3		36.0 - 36.3	
0.3 - 0.6		12.3 - 12.6	26	24.3 - 24.6		36.3 - 36.6	
0.6 - 0.9		12.6 - 12.9	19	24.6 - 24.9		36.6 - 36.9	
0.9 - 1.2		12.9 - 13.2	24	24.9 - 25.2		36.9 - 37.2	
1.2 - 1.5		13.2 - 13.5	27	25.2 - 25.5		37.2 - 37.5	
1.5 - 1.8		13.5 - 13.8	20	25.5 - 25.8		37.5 - 37.8	
1.8 - 2.1		13.8 - 14.1	23 23	25.8 - 26.1		37.8 - 38.1	
2.1 - 2.4	3	14.1 - 14.4	28	26.1 - 26.4		38.1 - 38.4	
2.4 - 2.7	5	14.4 - 14.7	30	26.4 - 26.7		38.4 - 38.7	
2.7 - 3.0	6	14.7 - 15.0	29 31	26.7 - 27.0		38.7 - 39.0	
3.0 - 3.3	8	15.0 - 15.3	30	27.0 - 27.3		39.0 - 39.3	
3.3 - 3.6	8	15.3 - 15.6	29	27.3 - 27.6		39.3 - 39.6	
3.6 - 3.9	10	15.6 - 15.9	28	27.6 - 27.9		39.6 - 39.9	
3.9 - 4.2	11	15.9 - 16.2	32	27.9 - 28.2		39.9 - 40.2	
4.2 - 4.5	10	16.2 - 16.5	33	28.2 - 28.5		40.2 - 40.5	
4.5 - 4.8	13	16.5 - 16.8	28	28.5 - 28.8			
4.8 - 5.1	14	16.8 - 17.1	27				
5.1 - 5.4	16	17.1 - 17.4	33				
5.4 - 5.7	18	17.4 - 17.7	34				
5.7 - 6.0	10	17.7 - 18.0	36				
6.0 - 6.3	13	18.0 - 18.3	33				
6.3 - 6.6	14	18.3 - 18.6	38				
6.6 - 6.9	18	18.6 - 18.9	50				
6.9 - 7.2	19	18.9 - 19.2					
7.2 - 7.5	20	19.2 - 19.5					
7.5 - 7.8	19	19.5 - 19.8					
7.8 - 8.1	19	19.8 - 20.1					
8.1 - 8.4	23	20.1 - 20.4					
8.4 - 8.7	17	20.4 - 20.7					
8.7 - 9.0	16	20.7 - 21.0					
9.0 - 9.3	17	21.0 - 21.3					
9.3 - 9.6	19	21.3 - 21.6					
9.6 - 9.9	23	21.6 - 21.9					
9.9 - 10.2	24	21.9 - 22.2					
10.2 - 10.5	24	22.2 - 22.5					
10.5 - 10.8	26	22.5 - 22.8					
10.8 - 11.1	27	22.8 - 23.1					
11.1 - 11.4	27	23.1 - 23.4					
11.4 - 11.7	23	23.4 - 23.7		35.4 - 35.7		47.4 - 47.7	
11.7 - 12.0	25	23.7 - 24.0		35.7 - 36.0		47.7 - 48.0	

Recorded by:

Verified by: RUOM

Approved by:

SYMBOLS		FLOOR FINISHES LEGEND		CEILING FINISHES LEGEND		VENTILATION	
A	FLOOR AREA	1	CEMENT RENDER	1	600mm X 600mm GYPSUM BOARD CEILING WITH ALUMINUM TRIM	1	NATURAL VENTILATION
B	FLOOR LEVEL	2	CEMENT RENDER WITH FLOOR HARLER	2	CEMENT SOFFIT 600mm X 1200mm ASBESTOS FREE FIBRE GLASS	2	MECHANICAL VENTILATION
C	FLOOR FINISH	3	HOMOLOC TILES TO ARCHITECT SELECTION	3	CEMENT COAT	3	EXHAUST FAN
D	CEILING FINISH	4	HOMOLOC NON SLIP TILES TO ARCHITECT SELECTION	4		4	FUME EXTRACTOR
E	VENTILATION	5	CEMENT RENDER CWT NOSING TILE	5		5	
F		6	EPOXY COLOUR PAINT	6		6	

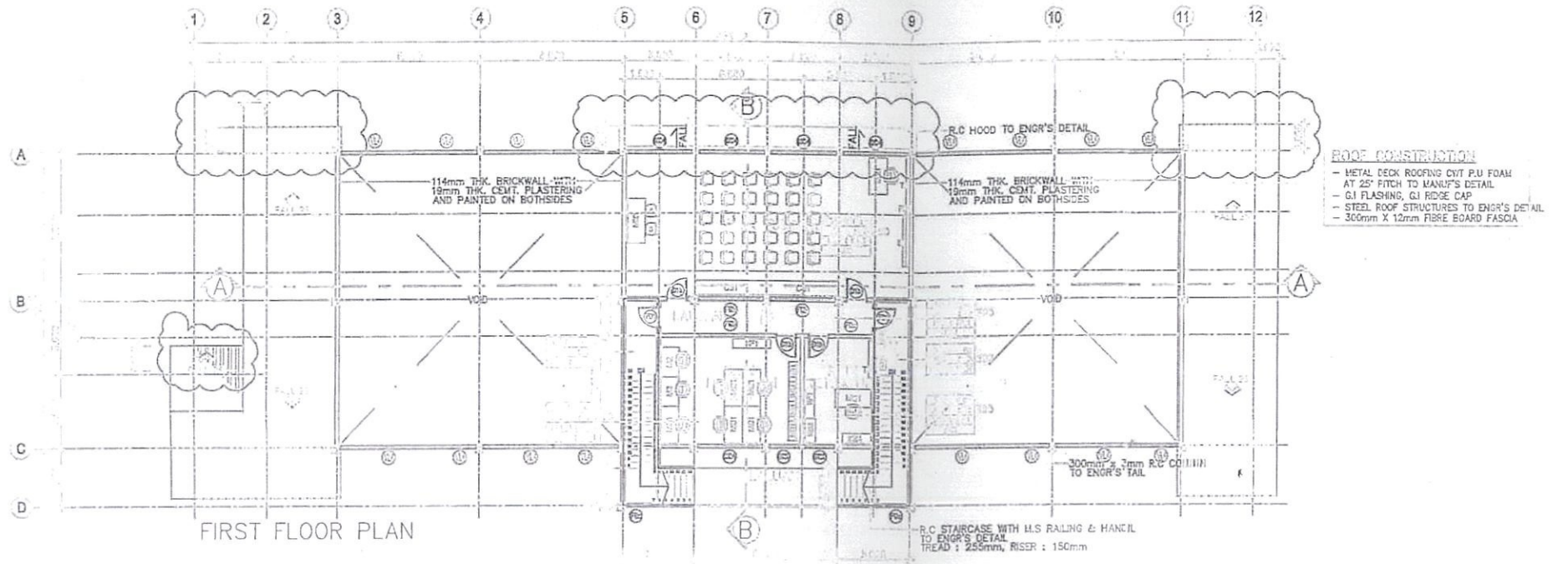
### DOOR SCHEDULE

CODE	SPECIFICATION
01	900mm x 2100mm HIGH METAL FRAME SINGLE LEAF PLYWOOD FLUSH DOOR
02	900mm x 2100mm HIGH METAL FRAME SINGLE LEAF PLYWOOD FLUSH DOOR AND 600mm x 600mm HIGH METAL FRAME FIXED LOUVRES ABOVE CWT. 12mm DIA. M.S. SECURITY BAR
03	900mm x 2100mm HIGH METAL FRAME SINGLE LEAF TIMBER PANELED DOOR CWT. DOOR CLOSER
04	1500mm x 2100mm HIGH METAL FRAME DOUBLE LEAF PLYWOOD FLUSH DOOR CWT. DOOR CLOSER
05	1500mm x 2100mm HIGH METAL FRAME DOUBLE LEAF TIMBER PANELED DOOR CWT. DOOR CLOSER
06	1500mm x 2100mm HIGH METAL FRAME DOUBLE LEAF PLYWOOD FLUSH DOOR, 1500mm x 600mm HIGH METAL FRAME FIXED LOUVRES ABOVE CWT. 12mm DIA. M.S. SECURITY BAR AND 1500mm x 2100mm GRILLE DOOR
07	1500mm x 2100mm HIGH METAL FRAME DOUBLE LEAF TIMBER PANELED DOOR CWT. DOOR CLOSER, 1500mm x 600mm HIGH METAL FRAME TOP HUNG WINDOW ABOVE WITH M.S. SECURITY GRILLE INTERNALLY AND 1500mm x 2100mm GRILLE DOOR
08	1350mm x 2100mm HIGH METAL FRAME DOUBLE LEAF TIMBER PANELED DOOR CWT. DOOR CLOSER
09	1500mm x 2100mm ALUMIN. FRAME DOUBLE LEAF TEMPERED GLASS DOOR, ALUMIN. FRAME FIXED GLASS PANEL ABOVE & BOTH SIDES AND GYPSUM BOARD ABOVE
10	1500mm x 2100mm HIGH METAL FRAME DOUBLE LEAF PLYWOOD FLUSH DOOR, 1500mm x 600mm HIGH METAL FRAME FIXED LOUVRES ABOVE CWT. 12mm DIA. M.S. SECURITY BAR
11	900mm x 2100mm HIGH METAL FRAME SINGLE LEAF PLYWOOD FLUSH DOOR CWT. GLI LINING INSIDE AND 900mm x 600mm HIGH METAL FRAME FIXED LOUVRES ABOVE
12	750mm x 2100mm HIGH METAL FRAME SINGLE LEAF UPVC FLUSH DOOR
13	1500mm x 2100mm HIGH METAL FRAME DOUBLE LEAF TIMBER PANELED FLUSH DOOR WITH DOOR CLOSER, 1500mm x 600mm HIGH METAL FRAME TOP HUNG WINDOW ABOVE WITH M.S. SECURITY GRILLE INTERNALLY AND 1500mm x 2100mm M.S. GRILLE DOOR
14	600mm x 1200mm HIGH METAL FRAME CASSETT GLASS WINDOW AND 600mm x 600mm HIGH METAL FRAME TOP HUNG WINDOW ABOVE ON BOTH SIDES CWT M.S. SECURITY GRILLE INTERNALLY
15	2700mm x 2700mm M.S. ROLLER SHUTTER TO MANUF'S DETAIL
16	5100mm x 2700mm M.S. ROLLER SHUTTER TO MANUF'S DETAIL
17	4500mm x 2100mm ALUMIN. FRAME TEMPERED GLASS SLIDING DOOR, ALUMIN. FRAME FIXED GLASS PANEL ABOVE & BOTH SIDES AND GYPSUM BOARD ABOVE
18	900mm x 2100mm HIGH METAL FRAME 1 HOUR FIRE RATED DOOR CWT DOOR CLOSER

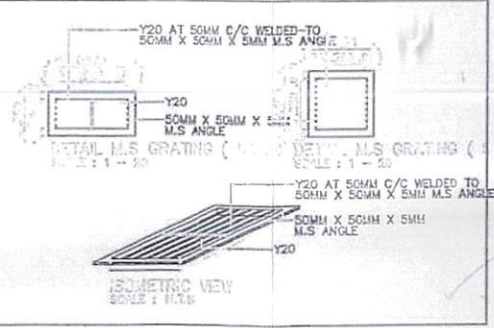
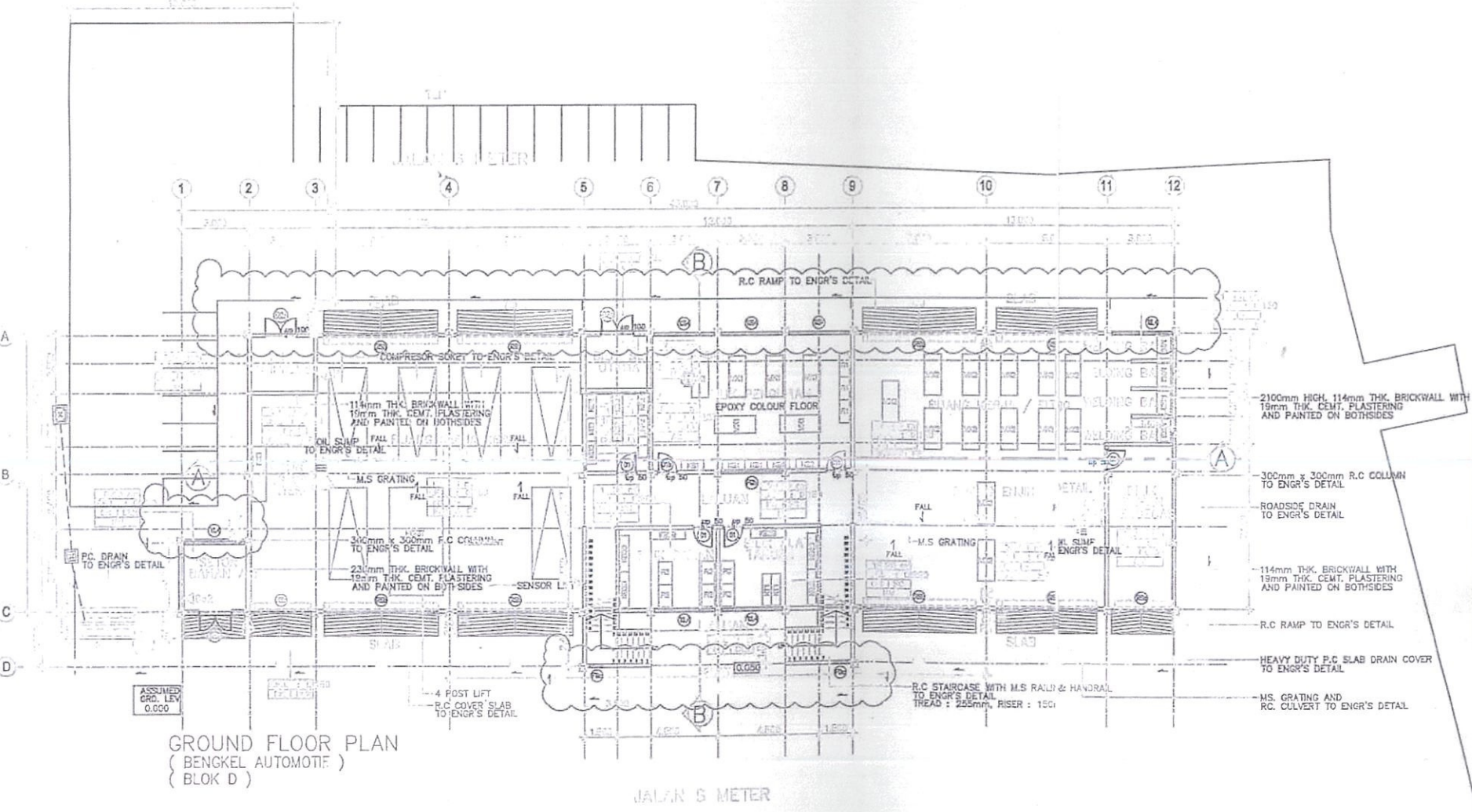
### WINDOW SCHEDULE

CODE	SPECIFICATION
01	1200mm x 1200mm ALUMIN. FRAME CASSETT GLASS WINDOW AND 1200mm x 600mm ALUMIN. FRAME TOP HUNG WINDOW ABOVE CWT M.S. SECURITY GRILLE INTERNALLY
02	2700mm x 1200mm ALUMIN. FRAME CASSETT GLASS WINDOW AND 2700mm x 600mm ALUMIN. FRAME TOP HUNG WINDOW ABOVE CWT M.S. SECURITY GRILLE INTERNALLY
03	1200mm x 1200mm METAL FRAME ADJUSTABLE GLASS LOUVRES AND 1200mm x 600mm METAL FRAME FIXED LOUVRES ABOVE CWT 12mm DIA. M.S. SECURITY BAR
04	2700mm x 1200mm METAL FRAME ADJUSTABLE GLASS LOUVRES AND 2700mm x 600mm METAL FRAME FIXED LOUVRES ABOVE CWT 12mm DIA. M.S. SECURITY BAR
05	2700mm x 1200mm ALUMIN. FRAME SLIDING GLASS WINDOW WITH AND 2700mm x 600mm ALUMIN. FRAME TOP HUNG WINDOW ABOVE CWT M.S. SECURITY GRILLE INTERNALLY
06	675mm x 600mm METAL FRAME FIXED GLASS LOUVRES CWT 12mm DIA. M.S. SECURITY BAR
07	1350mm x 600mm METAL FRAME FIXED GLASS LOUVRES CWT 12mm DIA. M.S. SECURITY BAR
08	2700mm x 600mm METAL FRAME FIXED GLASS LOUVRES CWT 12mm DIA. M.S. SECURITY BAR
09	1500mm x 1200mm ALUMINUM FRAME FIXED GLASS PANEL
10	2700mm x 1200mm ALUMINUM FRAME FIXED GLASS PANEL
11	675mm x 3000mm ALUMINUM FRAME FIXED GLASS PANEL CWT M.S. SECURITY GRILLE INTERNALLY



**ROOF CONSTRUCTION**

- METAL DECK ROOFING CWT P.U. FOAM AT 25' FITCH TO MANUF'S DETAIL
- G.I. FLASHING, G.I. RIDGE CAP
- STEEL ROOF STRUCTURES TO ENGR'S DETAIL
- 300mm X 12mm FIBRE BOARD FASCIA



MAHAJANDUTANGAN & COP PERLUKIS :

PERUNDING C & SYAZA CONSULTANT  
No. 277, TINGKAT BAWAH, JALAN SHAHAB 1, KOMPLEKS SU 05150 ALOR SETAR, KEDAH DARUL AMAN.  
Tel : 04363-33333  
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JURUKUR BAHAN  
JURUKUR BAHAN PERTAMA SION BHD  
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**MAZLANJAAFAR ARCHITECT**  
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Tel : 04363-33333 Fax : 04363-33333  
E-mail : mazlanjaafar\_arch@yahoo.com

Ar. Mazlan bin Jaafar  
No. Pendaftaran LAM : A/M 122  
SAYA MEMPERAKUI BAHAWA DETAIL-DETAIL DALAM PELAN - PEI KEHENDAK-KEHENDAK UNDANG - UNDANG KECIL BANGUNAN SERAGA SAYA SETUJU TERIMA TANGGUNGJAWAB PENUH DENGAN SEWAJARNYA  
PROJEK :  
PILAS KEMENTERIAN PENDIDIKAN MALAYSIA  
BLOK AUTOMOTIF RUMAH KEDAH (BLOK D)

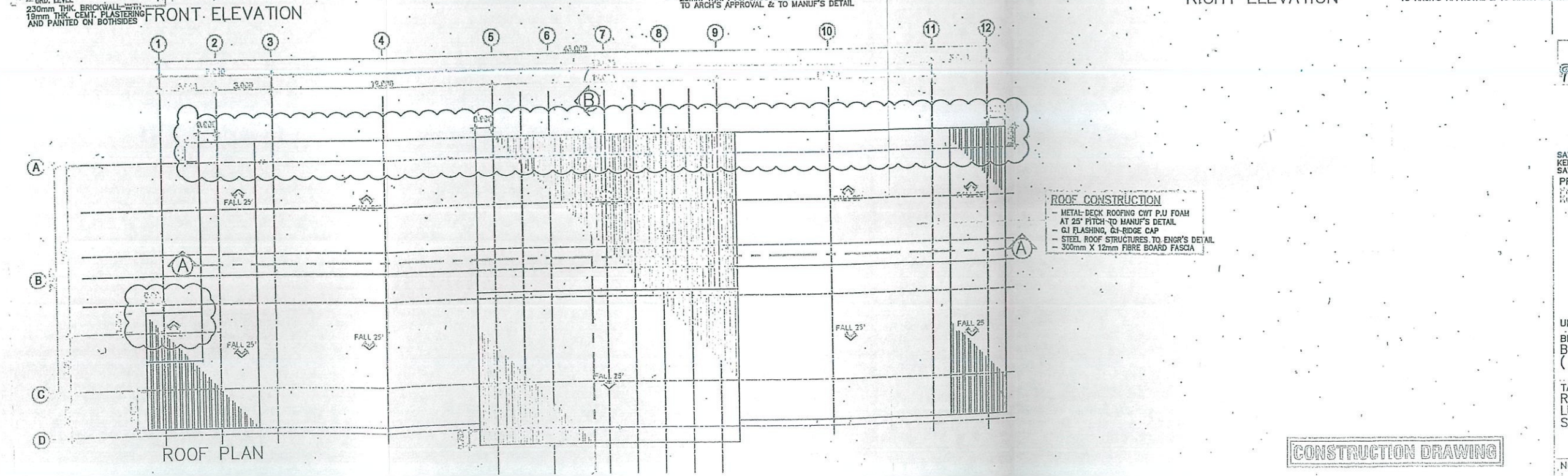
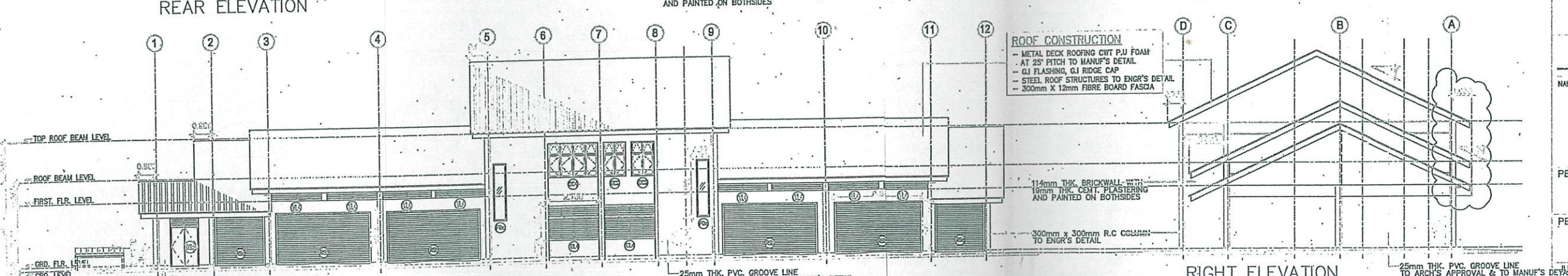
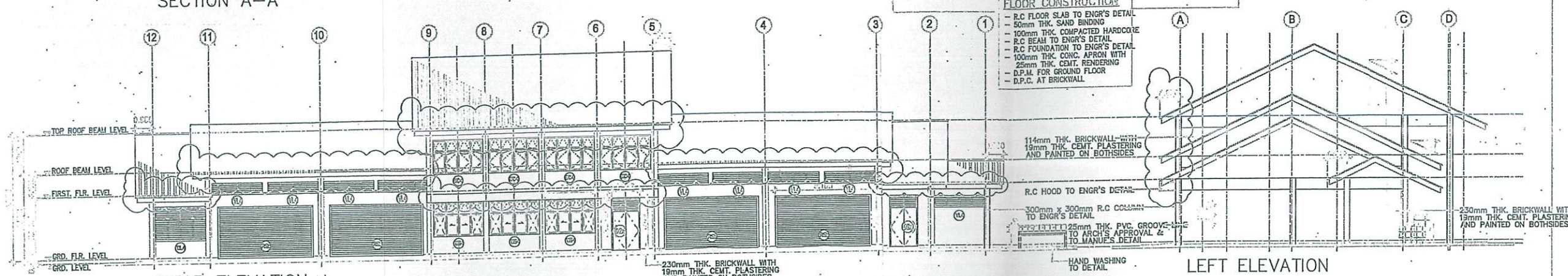
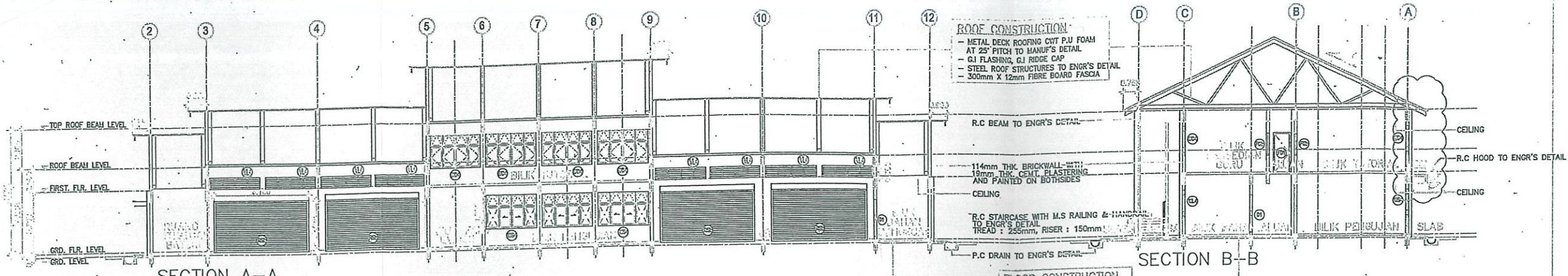
UNTUK KEMENTERIAN PENDIDIKAN MALAYSIA  
BLOK :  
BENKEL AUTOMOTIF  
( BLOK D )

TAJUK LUKISAN :  
GROUND FLOOR PLAN,  
FIRST FLOOR PLAN,  
FRONT ELEVATION &  
RIGHT ELEVATION

Ukuran : 1 : 125  
Tarikh : APR 2018  
Arkitek Bertugas: EN. FAIZ  
Dilukis Oleh : Aria  
Disemak Oleh: EN. MAZLAN

**CONSTRUCTION DRAWING**

NO. LUKISAN :  
JA/13/07/05



**PERUNDING C & S** STASA CONSULTANT  
 No. 297, TINGKAT BAWAH, JALAN SHAHAB 1, KOMPLEKS 05150 ALOR SETAR, KEDAH DARUL AMAN.  
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 Tel : 0487-2111111  
 E-mail : malmazlanjaafar\_arch@yahoo.com

Ar. Mazlan bin Jaafar  
**ARKITEK**  
 No. Pendaftaran LAM : A/M 122

SAYA MEMPERAKUI BAHAWA DETAIL-DETAIL DALAM PELAN - P KEHENDAK-KEHENDAK UNDANG - UNDANG KECIL BANGUNAN SERAH SAYA SETUJU, TERIMA TANGGUNGJAWAB PENUH DENGAN SEWAJARNY

PROJEK :  
 BENGKEL AUTOMOTIF (BLOK D)

UNTUK KEMENTERIAN PENDIDIKAN MALAYSIA

BLOK :  
 BENGKEL AUTOMOTIF (BLOK D)

TAJUK LUKISAN : ROOF PLAN, REAR ELEVATION, LEFT ELEVATION, SECTION A-A & SECTION B-B  
 Ukuran : 1 : 125  
 Tarikh : APR 2016  
 Disemak Oleh : EN. MAZLAN

NO. LUKISAN :  
 MA/6/07/2016

**CONSTRUCTION DRAWING**