



اَوْنِيُوْزَسِيْتِي تِي كُنُوْلُو كِي مَارَا  
UNIVERSITI  
TEKNOLOGI  
MARA

DEPARTMENT OF BUILDING

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

SEPTEMBER 2014

It is recommended that the report of this practical training provided

By

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Entitle

**Method Statement of Continuous Foundation and Detail of Design**

accept in partial fulfillment of requirement for obtaining Diploma in Building.

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**(PERAK)**

**SEPTEMBER 2014**

**STUDENT'S DECLARATION**

I hereby declare that this report is my own work, except for extract and summaries for which the original references stated herein through practical training practical training that I went through a period of 5 months from May 12 2014 to September 29 2014 at Teguh Setia Consult. It is also a requirement to pass the course DBN307 and accepted in partial fulfillment of the requirements for obtaining a Diploma in Building.

.....

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Date : 30th SEPTEMBER 2014

## ACKNOWLEDGEMENT

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## **ABSTRACT**

This report briefly describes the method statement of continuous foundation and the detail of the design. Method statement of continuous foundation will be observed at site while the detail of design of foundation will take the information at the office headquarters, asking the designer. The method base on the site that stationed whenever the foundation construct on process. Asking the contractor about the detail of installation, and put all the information on the paper and take picture to prove it as the process.

For the detail of continuous design, interviews have been done with engineer who designs it and all the information has stated. It quite simple, but have to know more knowledge on structure. It use software call Esteem Structural to calculate the entire load and give detail on it. But it needs to edit by engineer designer to make sure it will follow the specification based on the house or building to build. In this report, it will explain more detail about the dividing topic.

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## LIST OF ABBREVIATIONS

Ir      Insenior

UiTM   Universiti Teknologi MARA

En.    ``Encik``

# CHAPTER 1

## PREFACE

### 1.1 Introduction

This report is about installation of continuous foundation and detail of foundation designed by civil and structure engineer. This continuous foundation will be implementing to build for 15 units shop house three storey high at Mukim Keleweh. Continuous foundation commonly used for standard design of shop house nowadays. The method of foundations installation will be constructing with usual method based on the design. How with the design? Why the foundation designed?

Civil and structural consultant will take parts of this role to provide the drawing. Civil and structure engineer will use software to measure the load. So the software will show the correct design of foundation.

## **1.2 Objective**

The objectives of this study are as follows: -

- 1) To identify method statement of continuous foundation.
- 2) To identify the detail of design of continuous foundation.

### **1.3 Scope of study**

The scope of this study focuses on method statement for continuous foundation and detail of the design of foundation. For method statement, observation had done at the site to state all of the steps of the continuous installation. Pictures have taken to prove it right and some diagram was draw to get understand more on the steps. It started from dig the hole that aim for continuous installation until curing process. For detail of design, the designer explained about it and reasons why it be designed like that. In this matter, it used Esteem software to determine the location of foundation and why it be so. So, the engineer show the calculation and how to alter it since it need to combined based on the soil and building types.

#### 1.4 Method of study

All of the references play roles and give much information needed. It will explain about the topic and it aid to finish this report. All references have placed in this report, for method statement of continuous foundation and detail of design. The methodology divides by two parts:

1) Primary method:

a) Reference by person.

Interview with Siti Aishah binti Mat Isa as substructure and superstructure designer for this project and engineer Asma binti Kassim as engineer who explain detail of it.

b) Case study

Be on site and state while the process of continuous foundation on progress. Asked and interviews the designer and engineer on the details of the design of continuous foundation.



2) Secondary method:

a) Reference by book.

By refer books about this topic; it helps a lot to write this report. Books stated all the information needed and it suitable for the topics. The formulas of the foundation calculation and construction on site state all in book that referred.

b) Reference by electronic media.

It helps writers to know the sketches about steps of continuous installation, and what is the different between continuous, combined, strip foundations and can differentiate between on the site with the theory.

## CHAPTER 2.0

### COMPANY BACKGROUND

#### 2.1 Introduction/overview of Company



COMPANY NAME : Teguh Setia Consult

ADDRESS : PT2505, Tingkat 2, Kota Kenangan, Jalan Hospital, 15200 Kota Bharu Kelantan.

DATE OF COMMENCEMENT : 12nd April 2011

NATURE OF BUSSINES : Consultant in Civil and Structural

TELEPHONE :

PERSON IN CHARGE : Ir. Abrizan bin Abdul Kadir  
: Mohd Faidz bin Md Zain

BUSSINESS REGISTRATION: 967S/P

## 2.2 Profile of company

Teguh Setia Consult established in 2011 is a wholly owned by Malaysian Bumiputera firm offering services in Civil & Structural Engineering. The firm rendering a spectrum of engineering services adopting a modern engineering technique and innovation in order to enhance engineering design production.

### 1) Fields of practice encompass:

- Building / structural engineering
- Road / highway engineering
- Bridge engineering
- Drainage & irrigation engineering
- Water supply & water treatment engineering
- Traffic and transport studies
- Project management

2) Company Organization and Key Personnel

1. Corporate Information

3) Directors & Management

1. Ir. Abrizan bin Abdul Kadir

2. Mohd Faidz bin Md Zain

4) Shareholders

1. Ir. Abrizan bin Abdul Kadir - 50%

2. Mohd Faidz bin Md Zain - 50%

No	Designation	Name
1.	Principal	Ir. Abrizan bin Abdul Kadir
2.	Asse. Engineer	Mohd Faidz bin Md Zain
3.	Engineer 1	Asma Binti Kassim
4.	Engineer 2	Nurshazren Binti Fauzi
5.	Designer	Siti Aishah Binti Mat Isa
6.	Draftman	Khairi Bin Badaruddin
7	Draftman 2	Muhd Shaterie B. Md. Zain.
8.	Accountant	Nabila Binti Ramli

Table 1.0: Show the designation of the company.

### 2.3 ORGANIZATION CHART

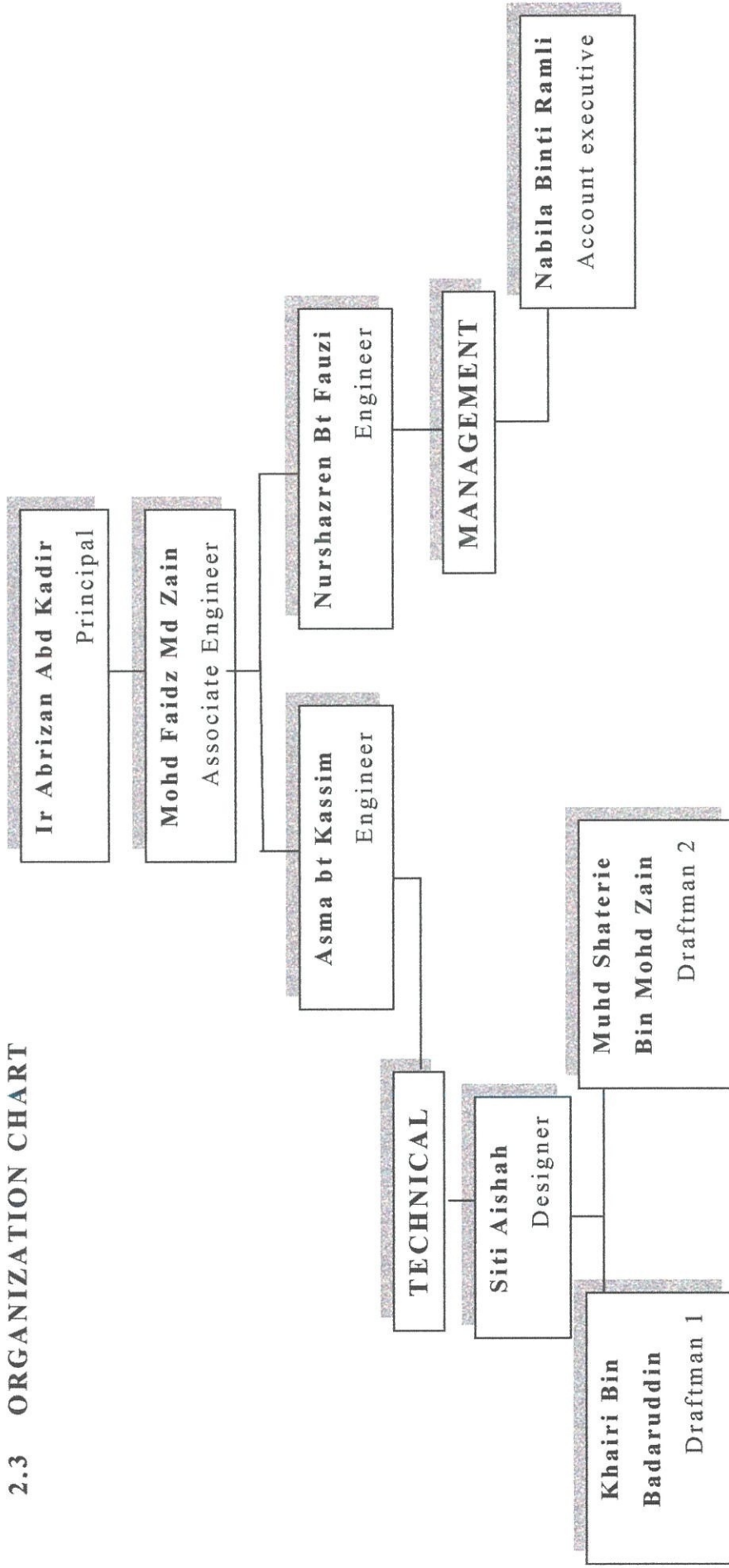


Figure: 1.0: Show the organization chart of Teguh Setia Consult.

## 2.4 List of Project

### 2.4.1 Completed project

- 1) “Cadangan membina dan menyiapkan Sport Complex- Canopy (Pt 1062, Mukim Tanjong Chat, Kota Bharu, Kelantan)”.
- 2) “Cadangan menyiapkan papan tanda iklan bersaiz (25’x50’), Kota Bharu, Kelantan”
- 3) “Membaik pulih dan mengubahsuai reka bentuk R.C untuk projek bangunan 2 tingkat sedia ada kepada 3 tingkat di atas Lot 240, Mukim Langgar, Jajahan Kota Bharu, Kelantan.”
- 4) “Cadangan membina dan menyiapkan sebuah tapak ‘Compact Sub’ bagi bekalan elektrik ke 4 unit kedai pejabat (batu) 3 tingkat di atas Lot Pt 1444 & 1445 Seksyen 47, Jalan pekeliling Mukim Padang Bongor Daerah Panji, Kota Bharu, Kelantan.”
- 5) “Cadangan membina dan menyiapkan satu (1) unit rumah banglo (batu) setingkat di atas Lot 521, Seksyen 33, Mukim Badang, Daerah Badang, Jajahan Kota Bharu, Kelantan.”
- 6) “Cadangan membina dan menyiapkan satu(1) unit rumah kediaman sesebuah(batu) 2 tingkat di atas Lot 1085, Seksyen 43, Mukim Tebing Tinggi, Daerah Kemumin, Jajahan Kota Bharu, Kelantan.”

#### 2.4.2 Project in progress

- 1) “Cadangan membina & menyiapkan 2 unit rumah semi-d 2 tingkat di atas lot pt 2040 & pt 2041 seksyen 36, Mukim Baung, Daerah Panji, Jajahan Kota Baharu, Kelantan. ”
- 2) “Cadangan membina & menyiapkan 2 unit rumah semi-d 1 tingkat setengah di atas lot 732- lot 733 seksyen 28, Mukim Bandar Kota Bharu, Daerah Kota Bharu, Jajahan Kota Bharu Kelantan.”
- 3) “Cadangan membina dan menyiapkan 25 unit rumah teres 1 tingkat diatas Lot Pt 3179 – Pt 3203, Mukim Rusa, Daerah Melawi, Jajahan Bachok, Kelantan. ”
- 4) “Cadangan membina dan menyiapkan 4 unit rumah teres 2 tingkat diatas Lot pt 2394 (type a), 2395, 2396 & 2397 (type b) Mukim Telok Bharu, Daerah Kubang Kerian, Jajahan Kota Bharu, Kelantan Darul Naim.”
- 5) “Cadangan pindaan dan tambahan keatas 1 unit rumah kediaman teres dua tingkat sediada diatas Lot 4318, seksyen 47, Mukim Padang Bonggor, Daerah Panji, Jajahan Kota Bharu, Kelantan Darul Naim. ”
- 6) “Membina dan menyiapkan 2 unit semi-d 2 tingkat, di bandar Kota Bharu, Kelantan.”
- 7) “Proposed renovation of kitchen at Istana Negeri, Kubang Kerian, Kota Bharu, Kelantan Darul Naim.”

## **3.0 CASE STUDY**

### **3.1 Introduction**

For the project, the design drawing will be referred by contractor to follow what on the drawing request. All of the size, detail of structure will be implemented from paper to ground by contractor. For this topic, it will use continuous foundation. It is because the project will construct shop house, so it is suitable to use continuous foundation. Continuous foundation is a support for wall, and more columns on the footing where the footing size or depth depend on the building. So the installation of this foundation just like pad footing, but it need more length and column need to be attached.

In preparing design of continuous foundation, the software used is Esteem software. The program will help structural engineer to design the structure of reinforcement concrete building easily. It will provide the detail of the drawing such as pile cap, floor slab, framing beam and column, pad base, multi-level foundation, wall, transfer slab and so on drawing details. Later on, number of bar use, arrangement of bar, dimension of the beam, column and more detail will be provided. Using Esteem software will ease and save time in design of beam. Before Esteem software had been use, engineer using manual method where by calculating all the structural reinforcement concrete using formulae. It seems slow the project flow and more complicated. Advantages of Esteem software are faster than conventional method, less miscalculated of the structure, able to check the loads are suitable with the building or not.



### **3.2 Background of the project**

This project called ‘Cadangan Membina dan Menyiapkan 15 Unit Kedai Pejabat 3 Tingkat Di Atas Lot PT 2575 – PT 2589, 1 unit TNB Substation diatas Lot PT 2665, Mukim Kelaweh, Daerah Pangkal Meleret, Jajahan Machang, Kelantan Darul Naim’ that have divided by two section, right wing and left wing. The client is Lim Man Lih, the architect is Kumpulan Perunding Sdn.Bhd and pointed Teguh Setia Consult as Civil and Structure Consulting. The contractor is LPT Properties Sdn.Bhd.. The sum of project is RM 959,010 (Ringgit Malaysia Nine Hundred Fifty Five Thousand And Ten Cent) . The surveyor is Juruukur Maju and the quantity surveyor is HAH Associates. This project expected to be done about three years that start 15th May 2014 until 30 May 2017.

### 3.3 Case Study

#### 3.3.1 Method statement of continuous foundation.

##### 3.3.1.1 Description of method statement

Continuous foundation is a one of the type of foundation that always use in construction industry. It is come from combination of the pad footing that it usually being use for long of footing length of building such as shop house, homestead and so on. It is usually more than two column stump in a row. If pad foundation, the column stump only one, and the length of footing is short, and it usually use for house only, but for the continuous foundation is the continuously combine of the pad footing, and usually use for long building such as shop house. So that is why it is call continuous foundation since the footing continuously combines of pad footing, refer sketches below. The method to construct continuous foundation is just like pad footing, but it different at certain process. So below is showing the flow chart and method statement of continuous foundation.

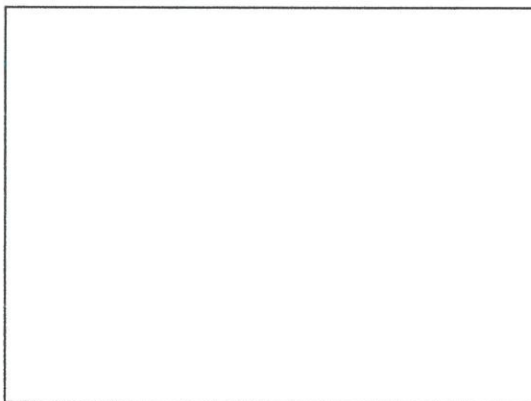


Photo 1.0: Footings continuously combine in a row

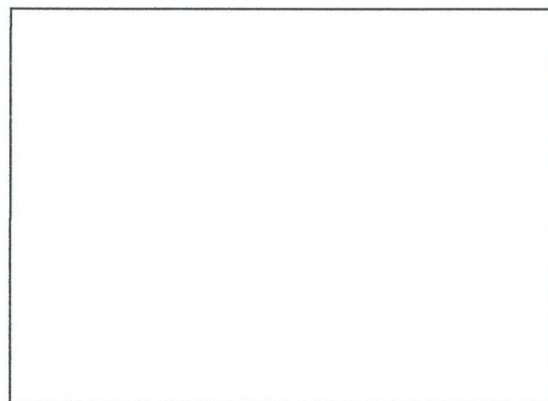


Photo1.1: Columns in a row of footing

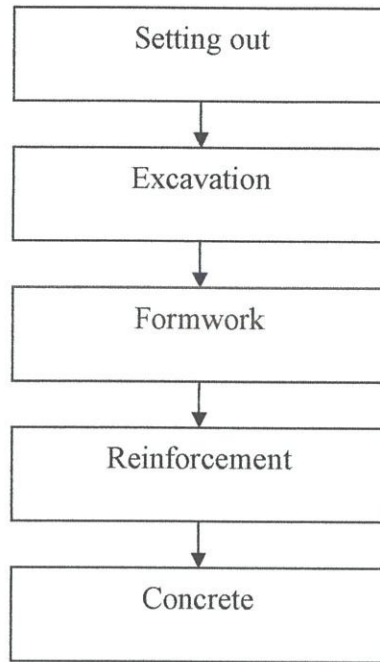


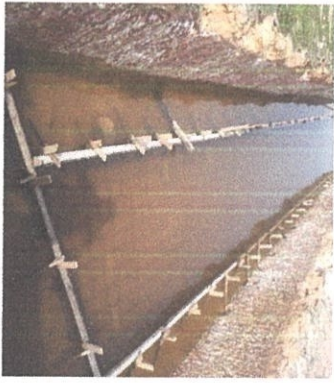
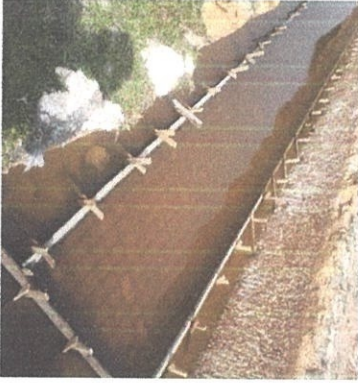



Figure: 1.1: Flow chart of method statement of continuous foundation.

NO	OPERATION	METHOD	SEQUENTIAL DIAGRAM	PLANT	LABOUR	EQUIPMENT	PERIOD
1	“Setting out”	Point for building and footing position before excavate.			Land surveyor, site supervisor, and carpenter.	Theodolite, wood spikes, spirit level, nylon thread, measurement tape, sand.	1 day
2	Excavate for continuous foundation and compact soil.	Excavate until lean concrete level and fill soil at the side of the foundation.		Compacter.	Concretor, backhoe operator.	Scoop	2 day

NO	OPERATION	METHOD	SEQUENTIAL DIAGRAM	PLANT	LABOUR	EQUIPMENT	PERIOD
3	Installation of the formwork for footing.	This formwork has been finish early, and it will use the same formwork for the two or three times for the same size, dimension of foundation.			Two carpenter, two semi-skill labour.	Saw, hammer, spirit level, nails, nylon thread.	1 days
4	Pour and put lean concrete, then able to install the spacing block and reinforcement bar.	Pour and put lean concrete first on the ground. Install spacing block on the lean concrete. Install footing reinforcement bar.		Concrete mixer.	Bar tender, two semi-skilled labour.	Cutting and bend machine. Scoop and flattener	1 day

NO	OPERATION	METHOD	SEQUENTIAL DIAGRAM	PLANT	LABOUR	EQUIPMENT	PERIOD
6	Pour concrete (grade 25) and put it inside the formwork.	Concrete will put in the formwork. After that will be use poker vibrator to make sure concrete ingredient completely mix.		Concrete mixer.	Concretor, two semi-skilled labour.	Scoop, wheel barrow, poker vibrator.	1 day
7	Remove the footing formwork to install stump formwork.	After footing concrete dry, remove the formwork. The points of the stump, thread need to be refer to make sure the stump formwork on the accurate position. Formwork stump need to finish a day before concreting at least.			Carpenter, two semi-skilled labour.	Hammer, 'T' angle.	1 day

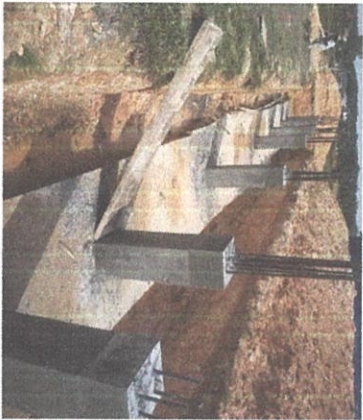
NO	OPERATION	METHOD	SEQUENTIAL DIAGRAM	PLANT	LABOUR	EQUIPMENT	PERIOD
8	Pour concrete and put it on the formwork.	Concrete will put in the formwork. After that will be use poker vibrator to make sure concrete ingredient completely mix.		Concrete mixer.	Concretor, three semi-skilled labour.	Scoop, wheel barrow, poker vibrator.	1 day
9	Remove the stump formwork.	After stump concrete dry, remove the formwork.			Two semi-skilled labour.	Hammer,	½ day

Table 1.1: Method Statement of Continuous Foundation

### 3.3.2 Detail of the design

#### 3.3.2.1 Description:

Type of foundation must be known first before purpose and calculate foundation. To purpose what kind of foundation will be use in a building or house, there are a few factors that can be influence on the type of foundation will use.

1. Condition, strengths and load bearing of the soil.
2. The selection of the foundation will be look at the all of the structure of the building.
3. Depend on type and characteristics of the building.
4. Load distribution of the superstructure of the building.
5. Depend on client to choose either use the economic one or not.

Then foundation will be calculated by using Esteem software. In Esteem, to get foundation detail, there have to calculate the superstructure first since it on the ground. So the software will automatically calculate the load from superstructure that will be bear by foundation. After that, pad footing will be provide by esteem after calculate all of the load will be distributed from top to soil. Esteem software only can provide pad foundation. So to design or propose foundation, like strip, raft and so on, the designer engineer will recalculate manually base on the footing made, and usually the continuous footing will be combined in a straight line and will use formulas.



### 3.3.2.2 Method to get detail of the footing.

Since the foundation is substructure, so the software already set that have to calculate the superstructure first, then total load of foundation will bear will be provided.

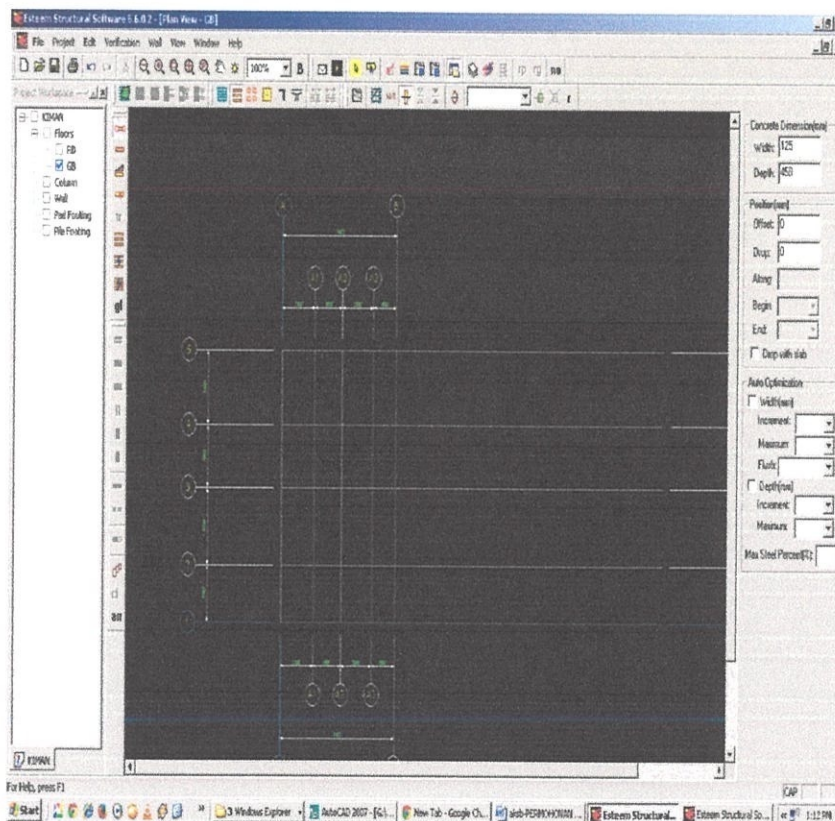


Photo 1.2: Draw grid line

1. Draw grid line that following architect's layout plan drawing.

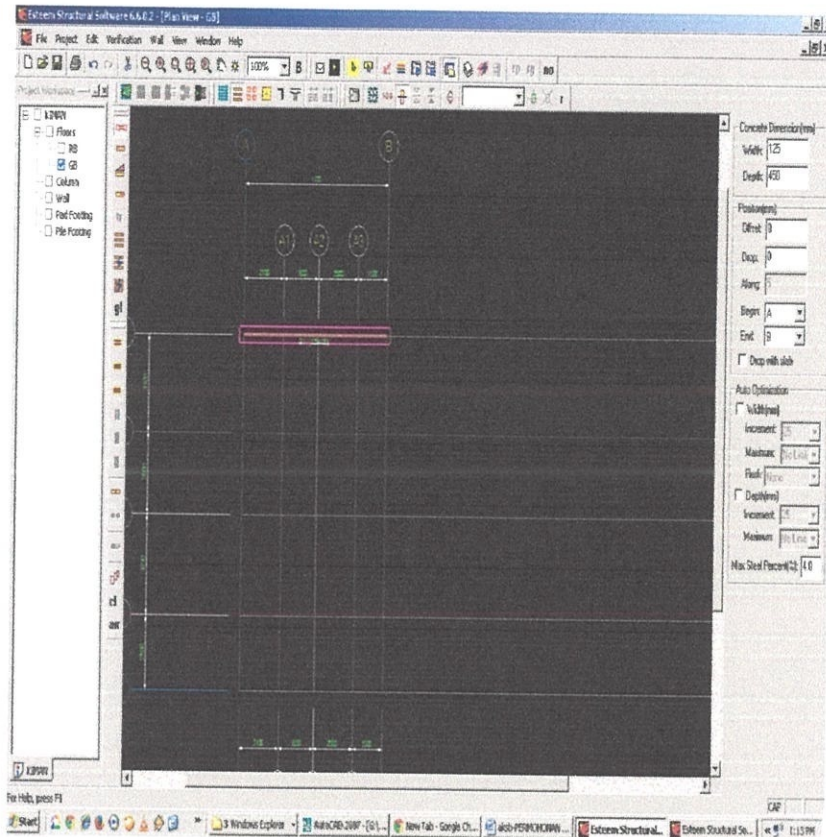


Photo 1.3: Enter the beam.

2. Enter the beam following grid line that is considered and reasonable by design engineer.
  - For example from point A to point B.
3. Enter the beam dimension or thickness. 125mm x 450mm
  - Example for usually use are 125mm x 450mm for house, but for shop house is 225mmx450mm.

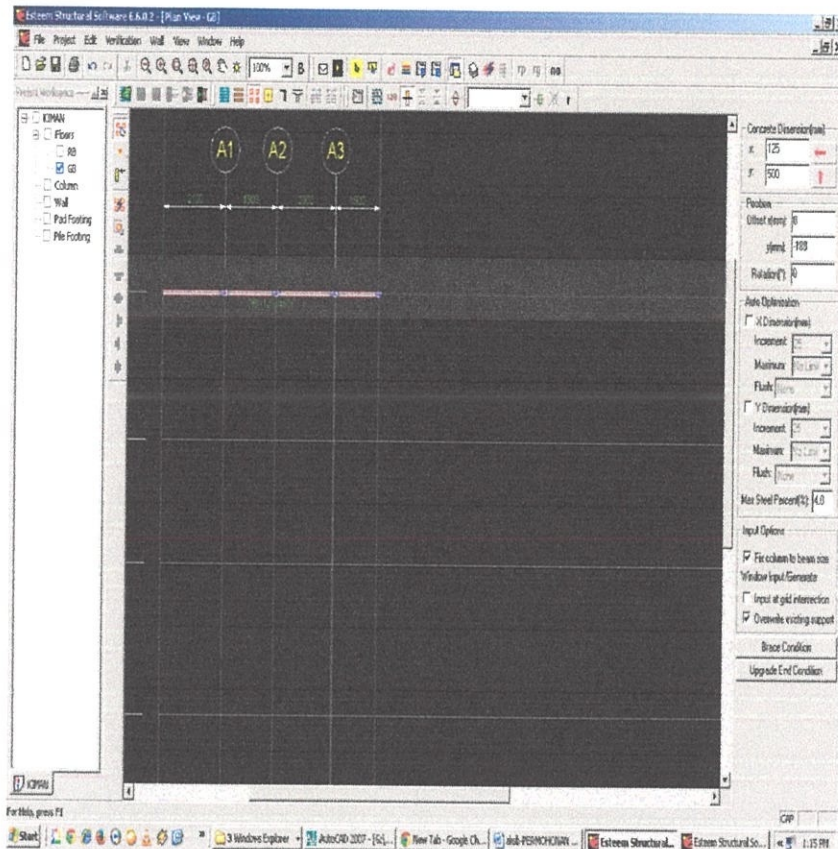


Photo 1.4: Enter the column

4. Enter the column following grid line, that considered and reasonable by design engineer.
  - Example for usually use are 125mm x 200mm for house, but for shop house is 200mmx225mm.
  - Column cannot be installed at gridline that has door.

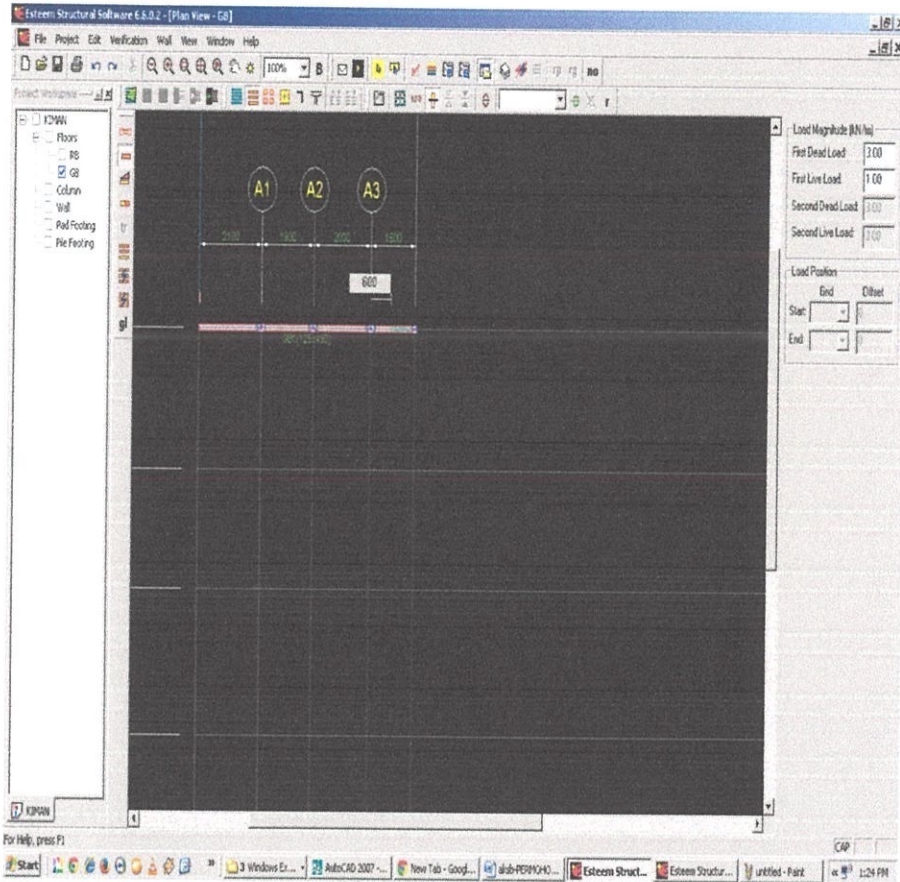


Photo 1.5: Entering the live load and dead load.

5. Enter the live load and dead load.
  - For dead load, there is no load be key-in.
  - For live load, there have to use a formula to calculate it.

(Height – depth of upper beam x 2.6 KN/m)

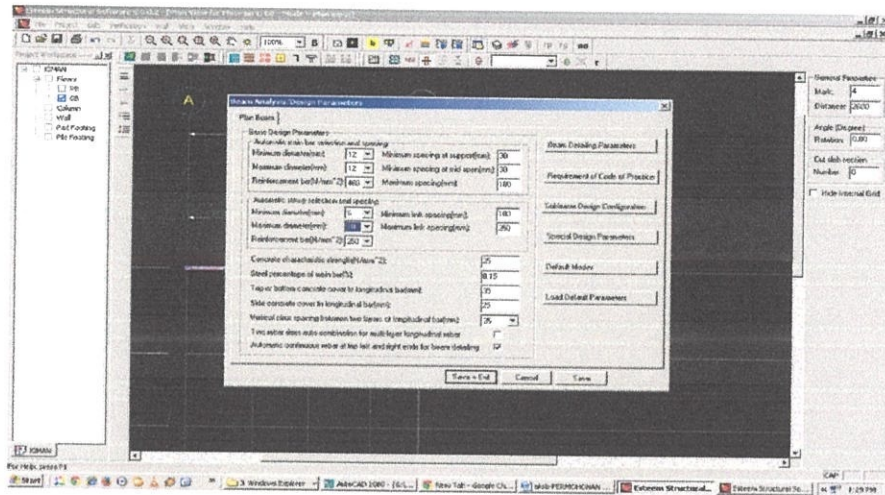


Photo 1.6: Entering the size Reinforcement bar and spacing for stirrup.

6. Enter the size Reinforcement bar and spacing for stirrup of beam.

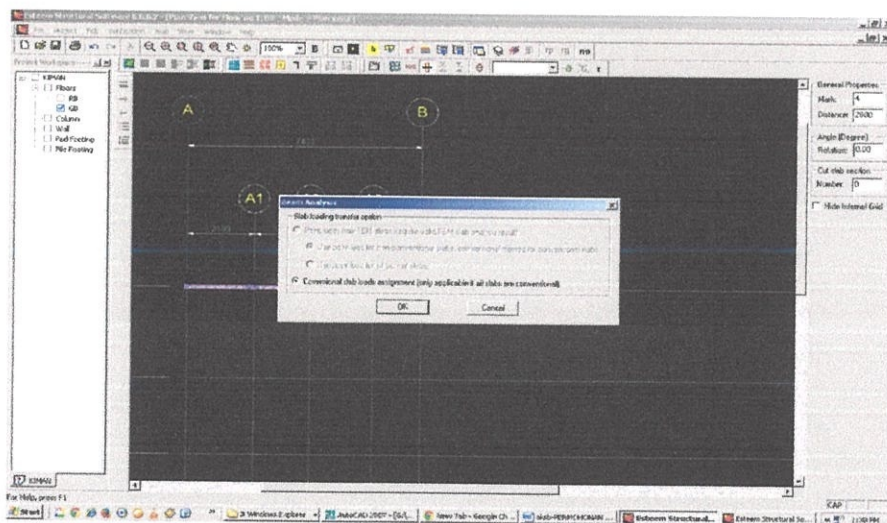


Photo 1.7: Run the purpose design.

7. Then run the purpose design.

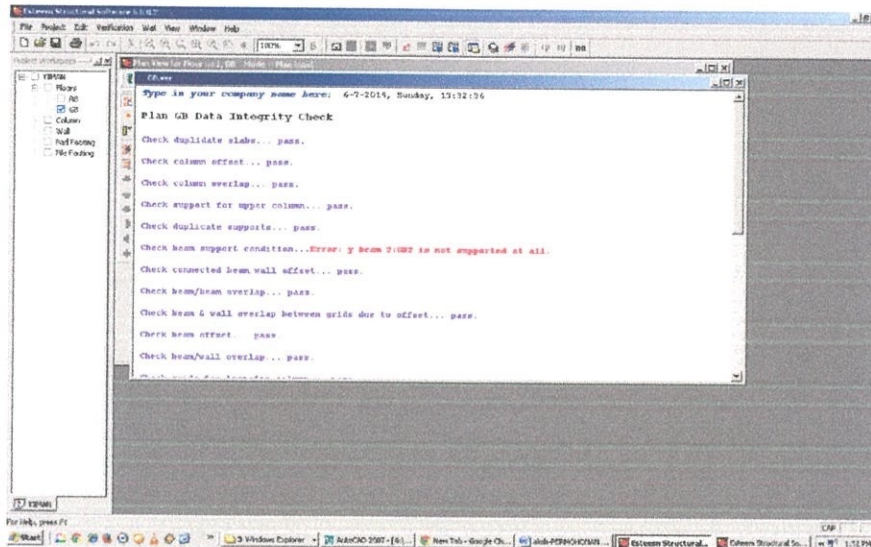


Photo 1.8: Show the failed result.

(The failed result)

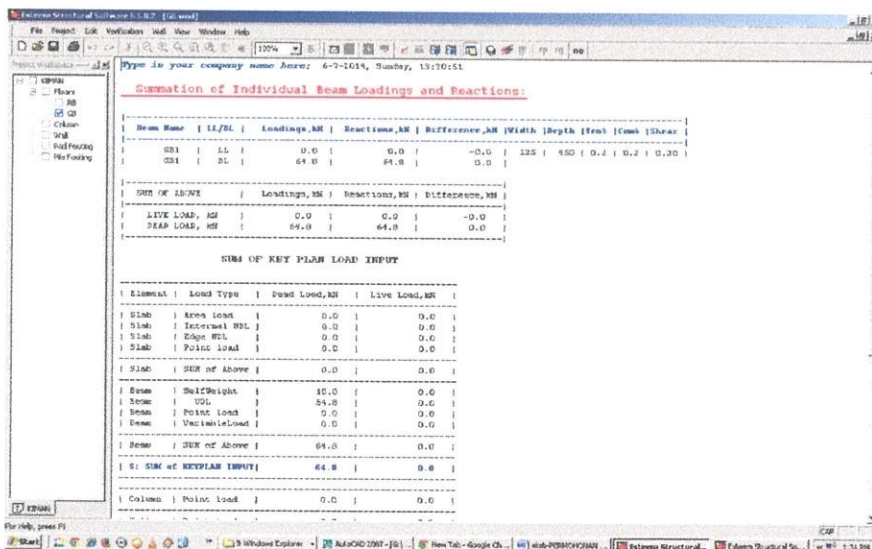


Photo 1.9: The success result

8. After success, it may be use. But if deny, check and redesign at the problem occur.

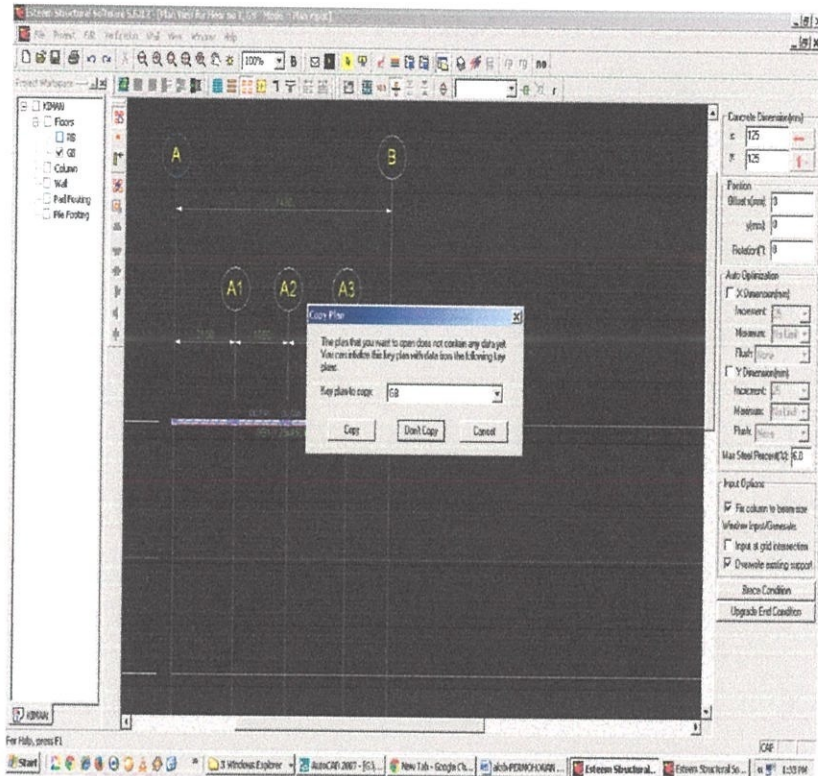


Photo 2.0: Finish of ground level.

9. After finishing ground level, copy it to design another storey, or roof beam. Do the same method from number 2 – 8.
  - If the height to upper beam same with the ground level to upper beam, do not alter the live and dead load.

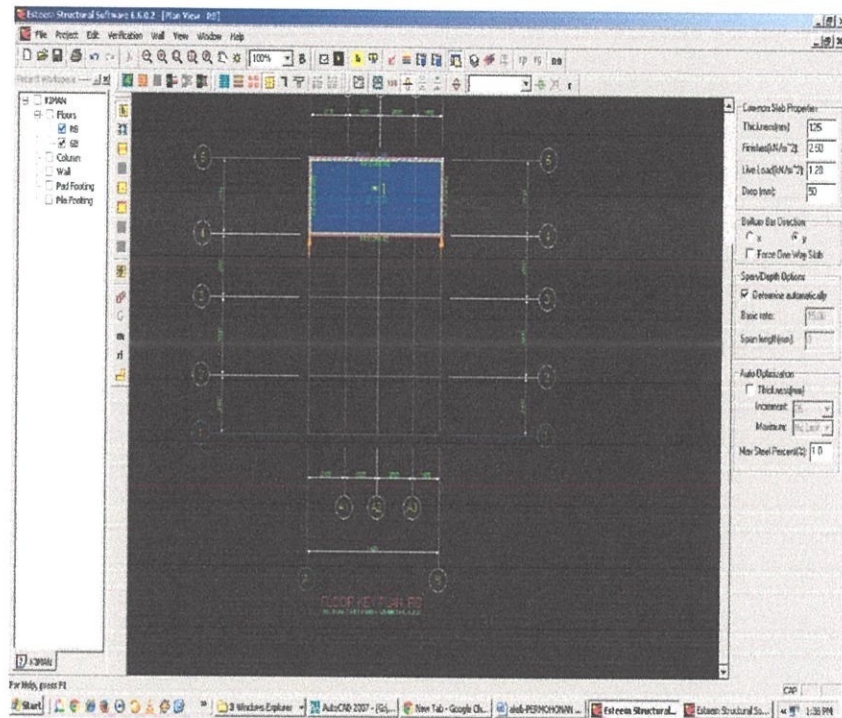


Photo 2.1: Design slab, enter the dimension.

10. Select to design slab, enter the dimension.

- Usually use 125mm the thicknesses, depending on architect drawing for flat roof.



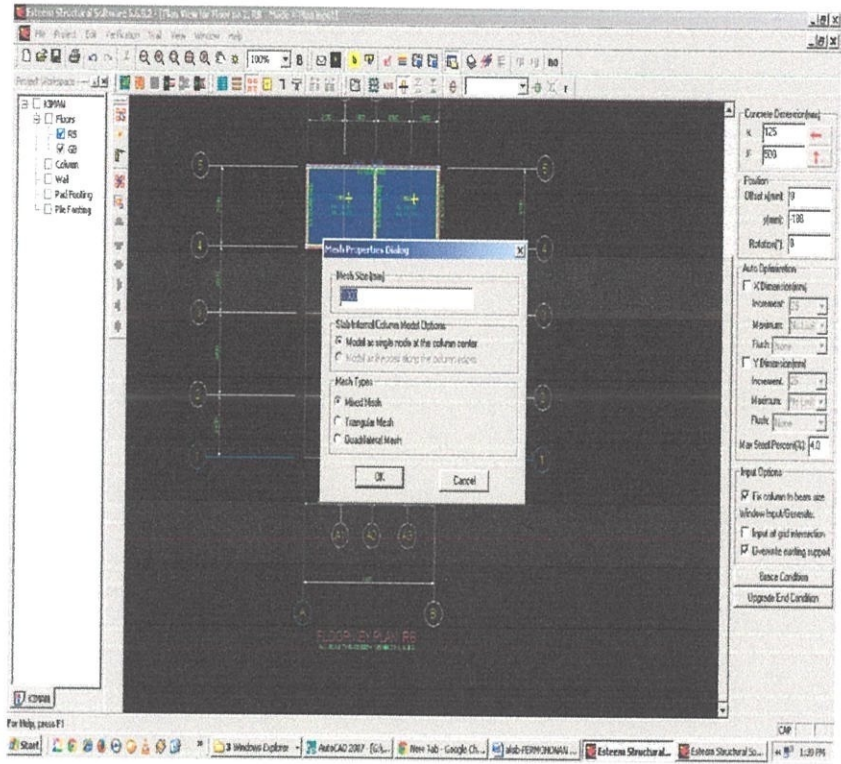


Photo 2.2: Entering the mesh for the slab or BRC.

11. Enter the mesh for the slab or BRC.

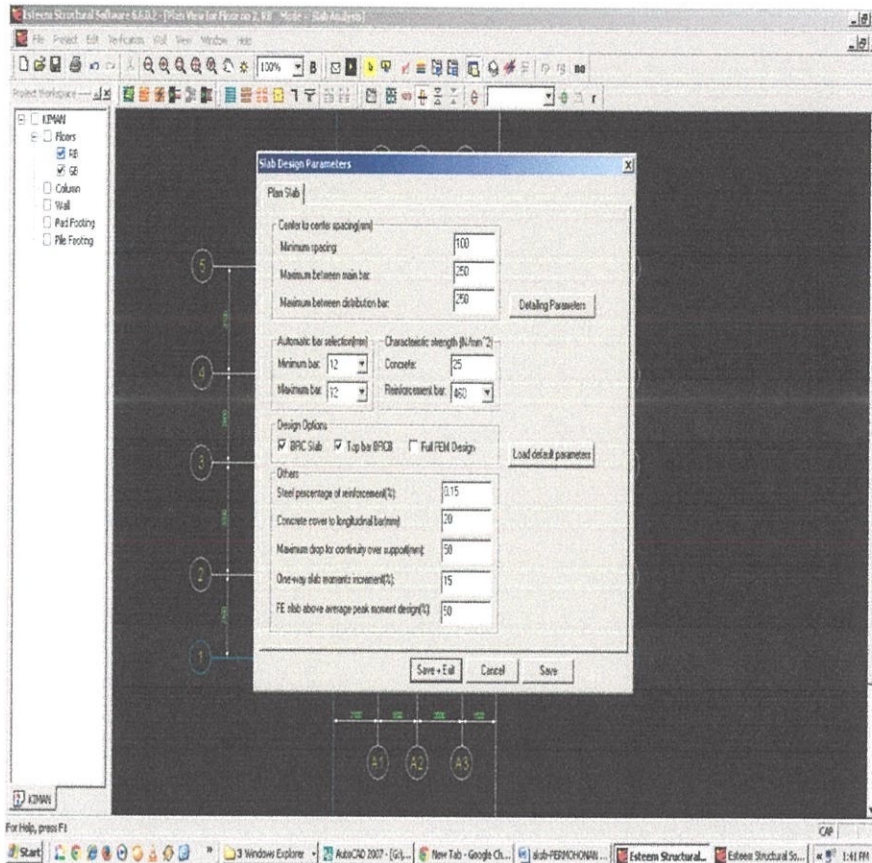


Photo 2.3: Enter the bar and spacing.

12. Enter the bar and spacing.

- Usually use minimum 6mm and maximum 10mm for stirrup and size of bar is 12mm-16mm for 2 storey houses

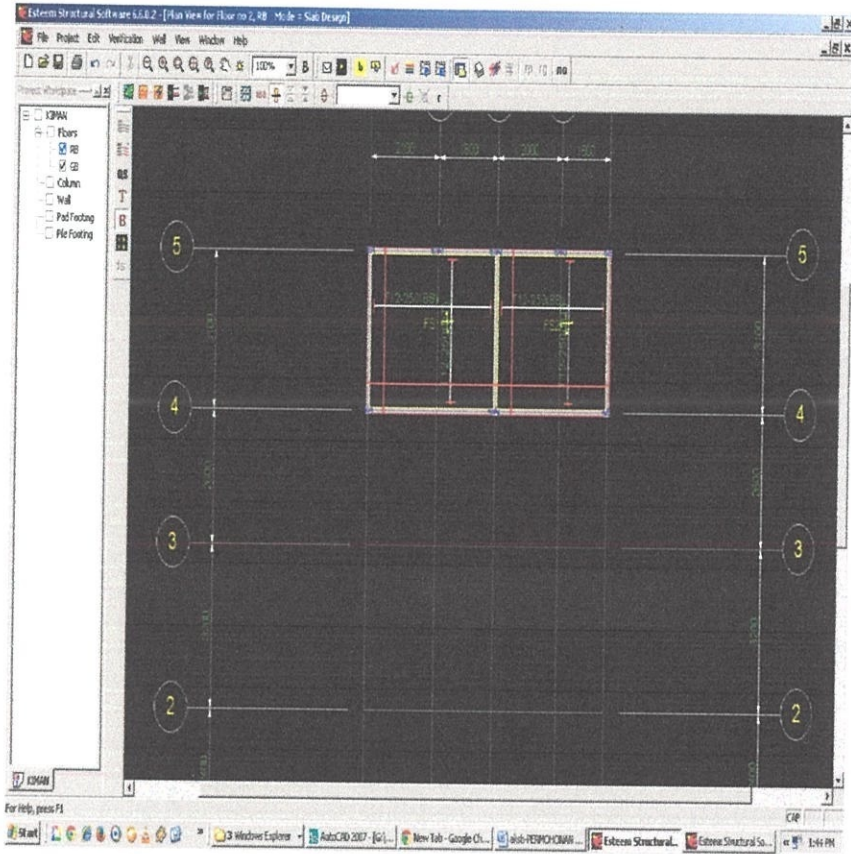


Photo 2.4: Detail BRC appear.

13. And it will appear BRC of detail.

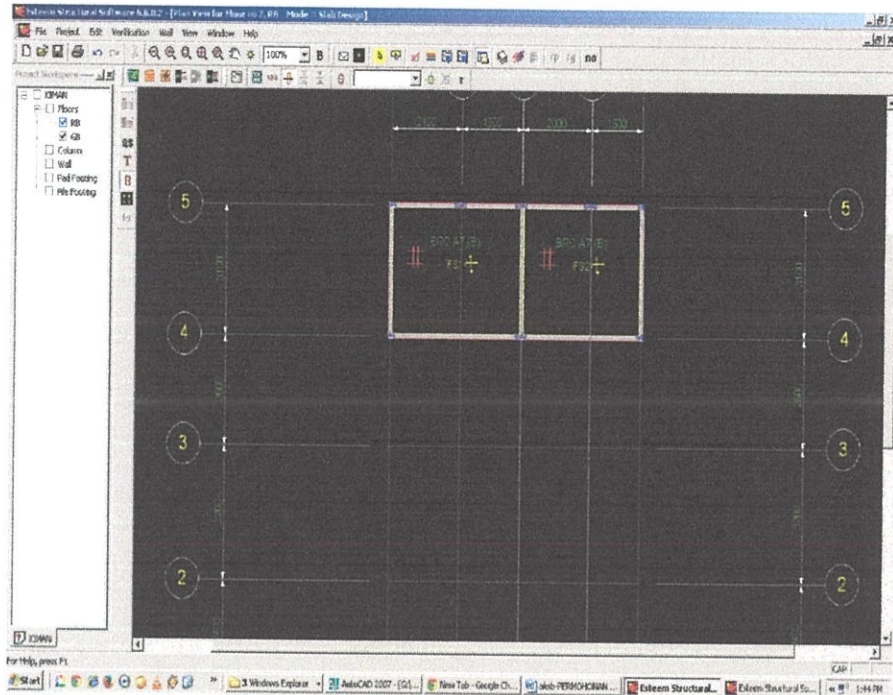


Photo 2.5: Entering the thickness, stirrup and bar of slab.

14. Enter the maximum and minimum thickness, stirrup and bar of slab.
  - Usually use minimum and maximum thickness are same, 12 mm

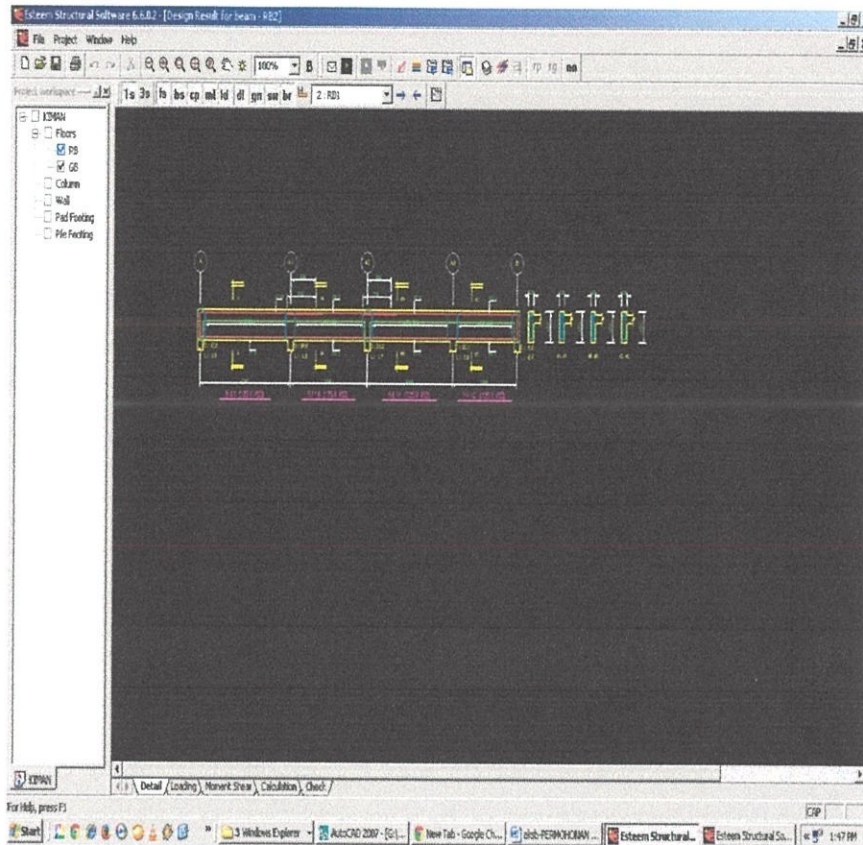


Photo 2.6: Detail beam appear.

15. Detail beam will be appear, if the bar in three layer on a beam, the thickness must be increase about 200mm following engineer's consideration.
16. Now pad foundation can be design.

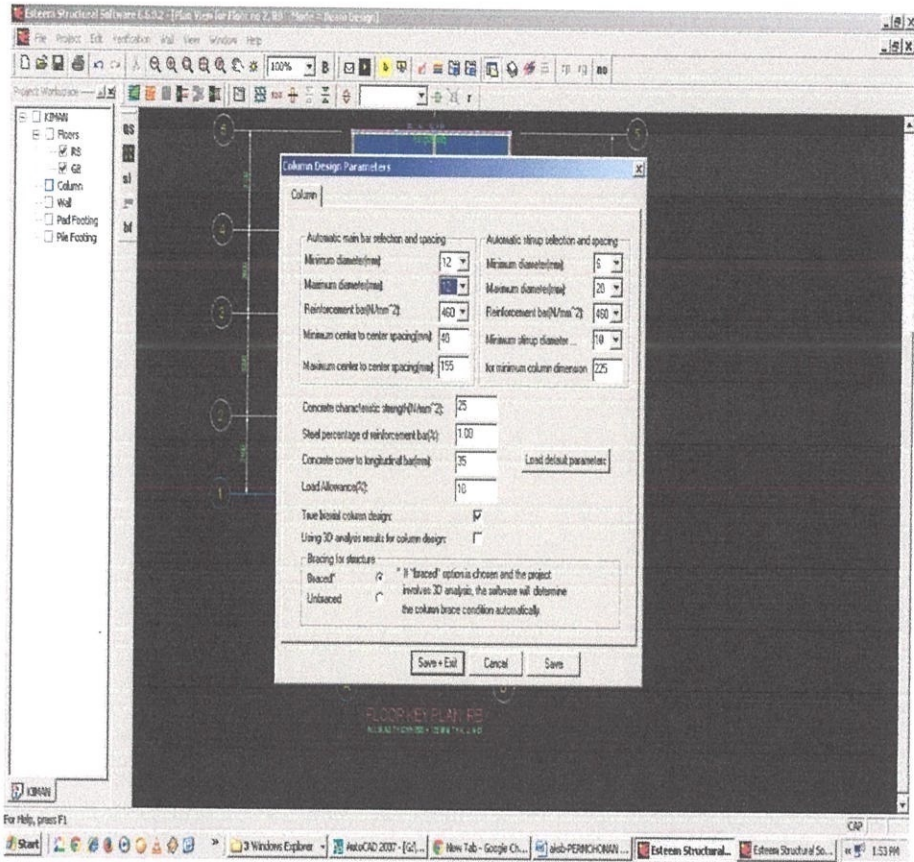


Photo 2.7: Entering diameter main bar for column.

17. Enter the information such as minimum or maximum diameter main bar for column of foundation.

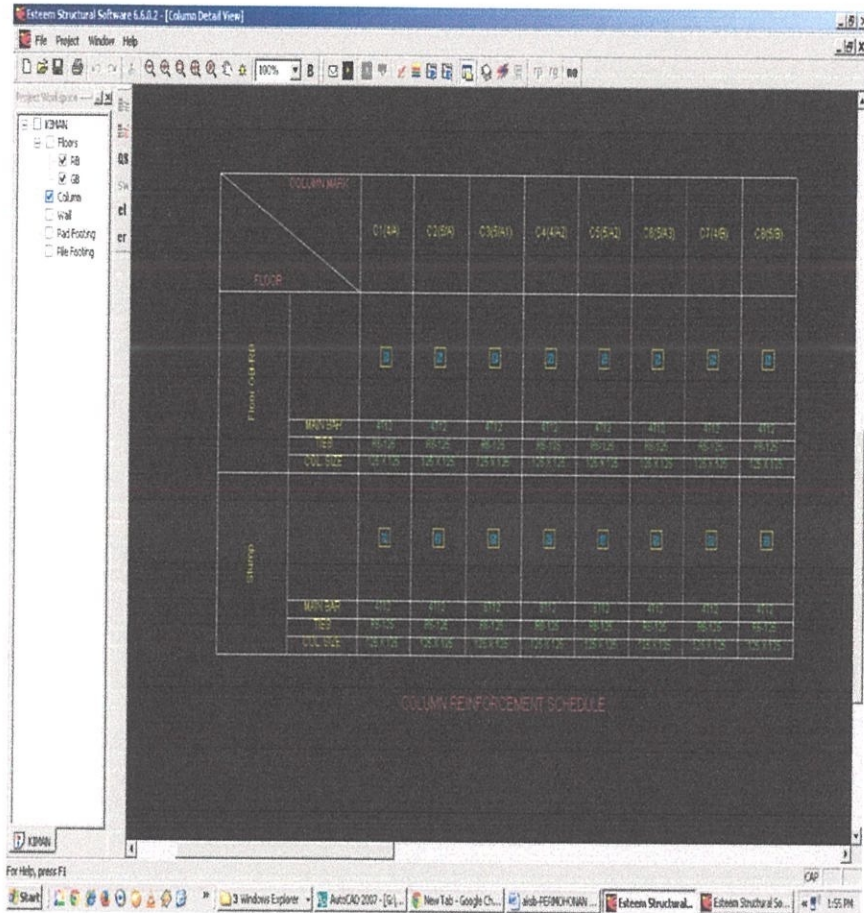


Photo 2.8: Column stump appear.

- Detail of column stump will appear.

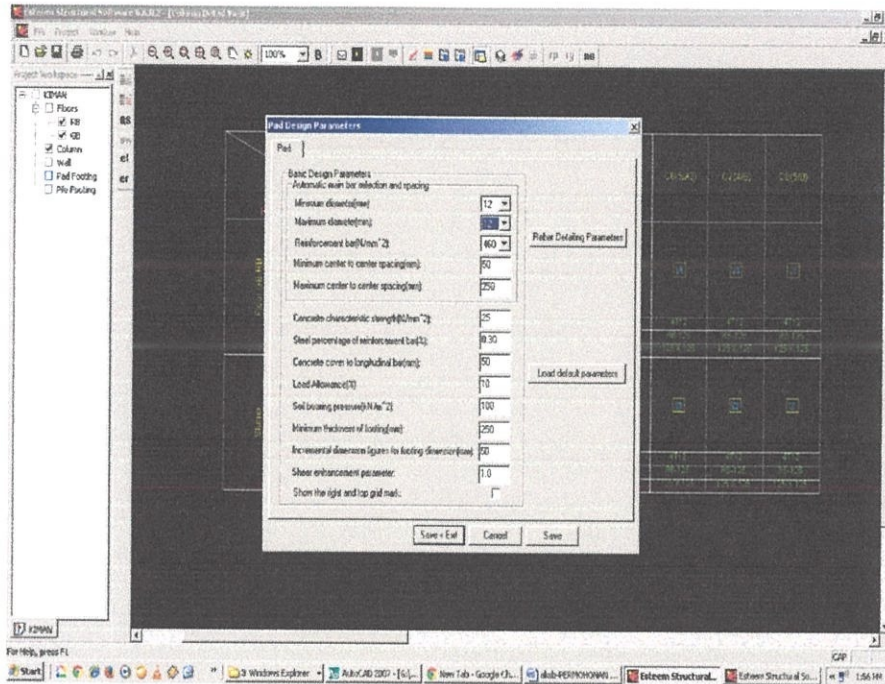


Photo 2.9: Entering diameter main bar for footing.

19. Enter the information such as minimum or maximum diameter main bar for footing of foundation.



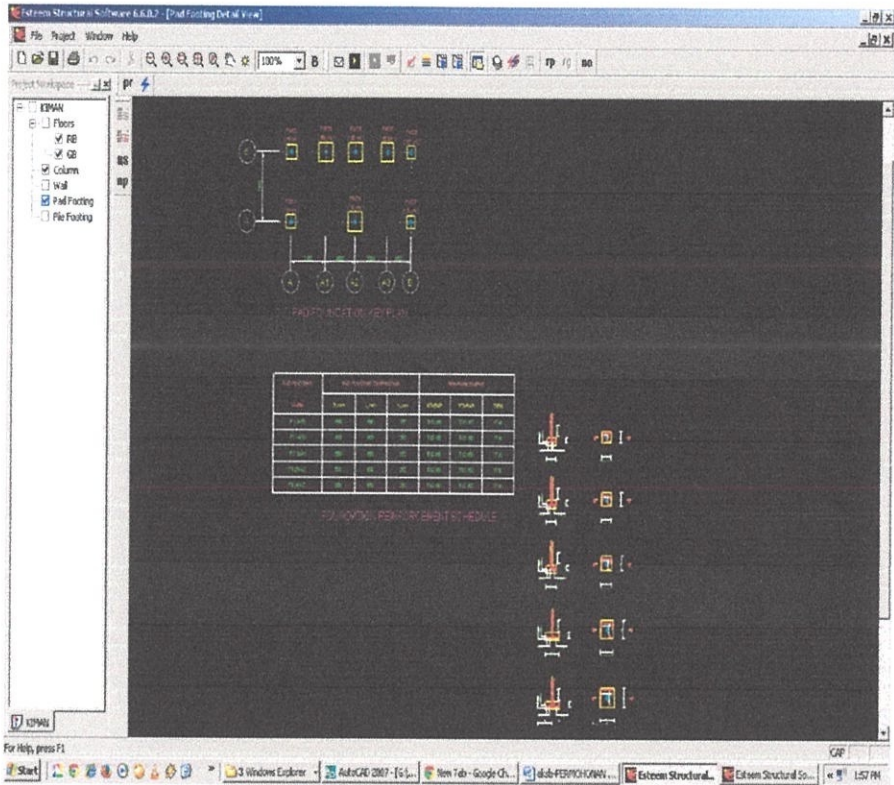


Photo 3.0: Stump appear.

20. Detail of footing stump will appear.

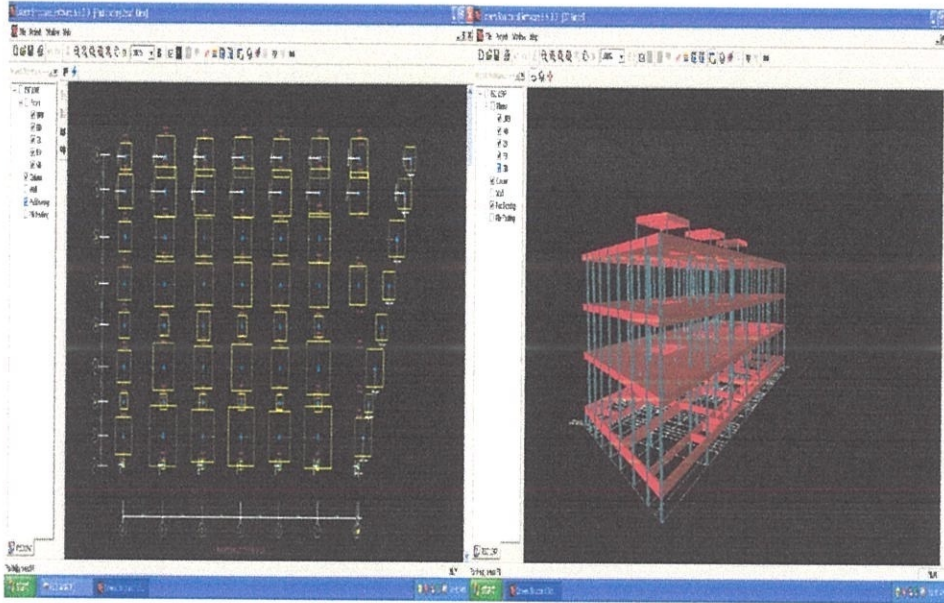


Photo 3.1: Finish of pad foundation

Photo 3.2: 3D view

21. . Then save to Auto CAD, for editing and drafting.
22. Also can be preview in 3D of structure design.

### 3.3.2.3 Calculation to get Continuous Foundation

There is the formula;

- $(+load \text{ kN/m}) / 100 \text{ kN/length (m)} = \text{width of footing}$ . Answer will be use as breath of footing.

In this project, there is use continuous foundation, but on this case, there are many size of foundation for this shop house. So the three different size will be observe and compare. All the comparison foundation will mark with three different of color.

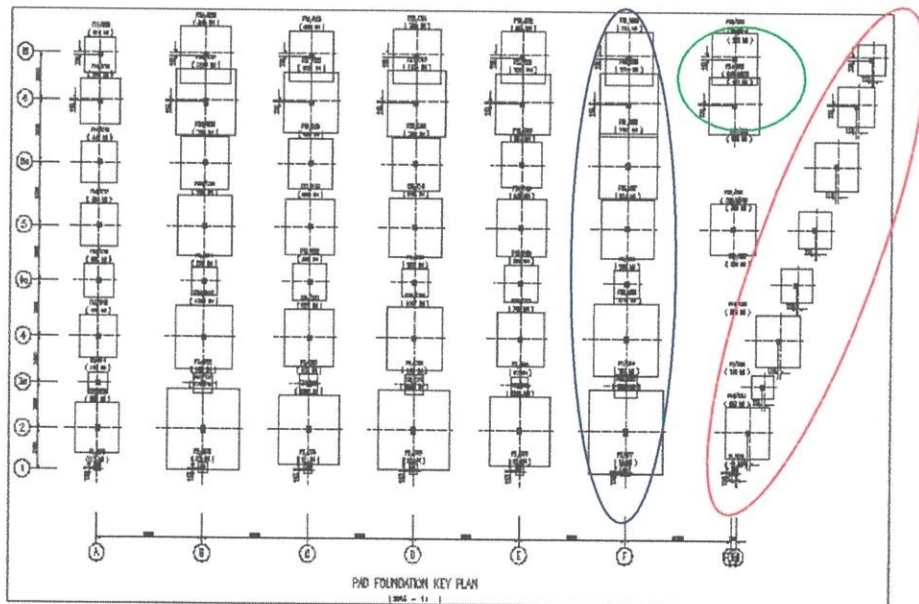


Photo 3.3: Pad foundation before calculate to continuous.

F2: 

Calculation:

$$\frac{(252\text{Kn/m}+431\text{kn/m}+619\text{kn/m}+358\text{kn/m}+319\text{kn/m}+680\text{kn/m}+146\text{kn/m}+693\text{kn/m}+12\text{kn/m})}{100\text{kN}}$$

$$100\text{kN}$$

$$= 35.10 \text{ m} = 35.10\text{m}/33.88\text{m}(\text{length}) = 1.04\text{m} \therefore \text{Breath } 1.04\text{m} , \text{Length } 33.88 \text{ m}$$

F1: 

Calculation:

$$\frac{(734\text{Kn/m}+1114\text{kn/m}+1163\text{kn/m}+924\text{kn/m}+206\text{kn/m}+1415\text{kn/m}+153\text{kn/m}+1800\text{kn/m}+224\text{kn/m})}{100\text{kN}}$$

$$100\text{kN}$$

$$= 77.33 \text{ m} = 77.33\text{m} / 21.36\text{m} = 3.62\text{m} = 3.7\text{m} \therefore \text{Breath } 3.62 \text{ m} , \text{Length } 21.36 \text{ m}$$

F4: 

Calculation:

$$\frac{(718\text{kNm})}{2.94\text{m}}$$

$$100\text{kN}$$

$$= 2.44\text{m} = \therefore \text{Breath } 2.44\text{m} , \text{Length } 2.94\text{m}$$

Figure 1.2: Calculation of Continuous Foundation

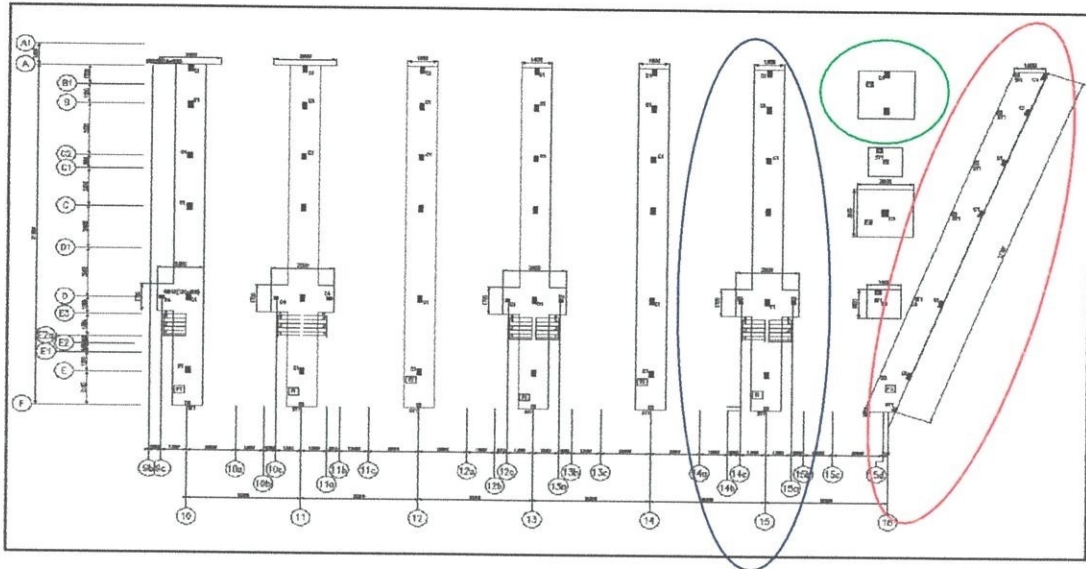


Photo 3.4: After changing from pad to continuous.

F2:

- i) The beam has been combined with in their line after calculation has be made.
- ii) So contractor will follow the drawing given by civil engineering consultant.
- iii) Any changes later will consider by structural engineer, client and contractor, but now there are no changes from the original one, only just to calculate like usual by engineer.

F1:

- i) Two beams has been add-on at the staircase because to make sure it is strong. Use the same formula, but on the horizontal direction.
- ii) Any changes will consider by structural engineer, client and contractor.

F4:

- i) The beam has been combined with in their line after calculation has be made, and only two footing that be combined from original.
- ii) Any changes will consider by structural engineer, client and contractor.

### 3.3.2.4 The differences of the three other footing on this project.

#### 1. F2 – Footing number 2

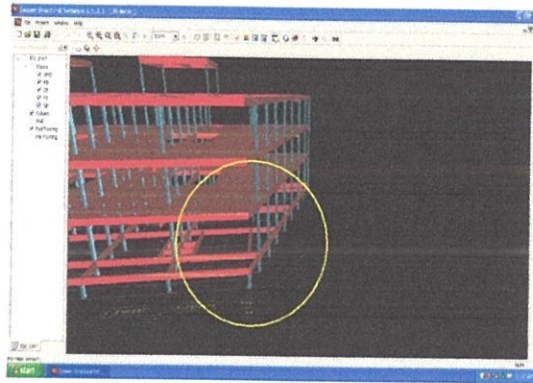


Photo 3.5: Point of view of F2

Different:

- i) The beam located at the side, and in oblique position so stiffeners must be installed to stabilize and give more stability since column stumps are placed a little bit aside.
- ii) Based on the building design.

#### 2. F1- Footing number 1

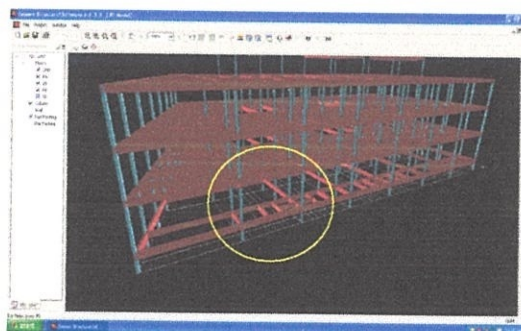


Photo 3.6: Point of view of F1

Different:

- i) If on the ground plan, there have staircase, that is why it is straight and at the staircase location the foundation is wider than others.
  - ii) At the wider size of foundation at staircase, there is three number of column stump where it have to support more load from staircase.
3. F4 – Footing number 4.

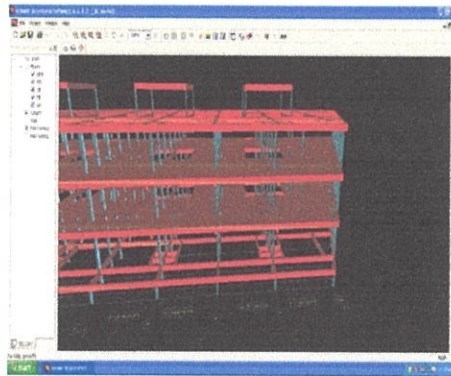


Photo 3.7: Point of view of F4

Different:

- i) Not combined with others because position of the footing not suitable to combine.
- ii) Two columns stump installed there, since have staircase will be installed at the ground level.
- iii) Two column stump will be install there because it will bear straight run staircase and it act as ‘holder’ to first step of staircase at the ground level.

## CHAPTER 4

### 4.1 Conclusion

In conclusion, in this report a lot of information about method construction of continuous foundation and detail of the design foundation. One of the advantages by using continuous foundation is it save time to construct footing. It is because the carpenter only makes formwork just a few time since the continuous footing's formwork is continue in a long line. Furthermore, concrete only just once to pour for a footing, and it can full the formwork. So energy, time, and also money can be saving.

Know how the footing being design and also how the engineer designs it as to apply on the shop house is a very compulsory knowledges. In addition, it is very important to know how engineer design it using Esteem so that we as contractor know the calculation come from where, how it design, why it design so and so on. Furthermore, we as contractor cannot be cheat by the other parties in construction by know their daily works are.



## **4.2 Recommendation**

Based on observation made during practical training here, there are many things learned either good things or opposite of it. The first things that must be improved by the company is, payment of salary for the staffs as they always complaint about it. The standard grade of salary is low compared to the staff qualification. As a result, they lack of motivation to give their best during working. Yes, it is private company, and it is depend on director manager to decide the grade of salary, but at least the payment must as worth as staff qualification. It will affect the performance of staffs, their perception towards the boss, willingness to work harder and so on if they not happy with their salary. As a practical student, talking about it in front them is not a reasonable thing. So I hope this company can consider the payment grade of salary for the staffs so that the staffs will happy and it will not affect company's performance.

In addition to that, this company has to 'keep' their staff longer, and not hire the fresh graduate. If they always appointed fresh graduate, it will take time to teach the new staff. So it will disturb the company's flow of work.

Furthermore, the process can be smooth if the staff at the office can make site visit at the project site at least once in two weeks, so that know what it problem and can directly check the accurate dimension and numbers of bars that apply by contractor.

## References

### Interviews

- 1) En Mohd Faidz Bin Mohd Zain, Engineer at Teguh Setia Consult
- 2) Asmaa Binti Kassim , Engineer at Teguh Setia Consult
- 3) Nurshazren Binti Fauzi, Engineer at Teguh Setia Consult
- 4) Siti Aisyah Binti Mat Isa, Desiger at Teguh Setia Consult
- 5) Khairi Bin Badaruddin, Draftman at Teguh Setia Consult
- 6) Aiman bin Shukri, Supervisor at LPT Property Sdn Bhd.

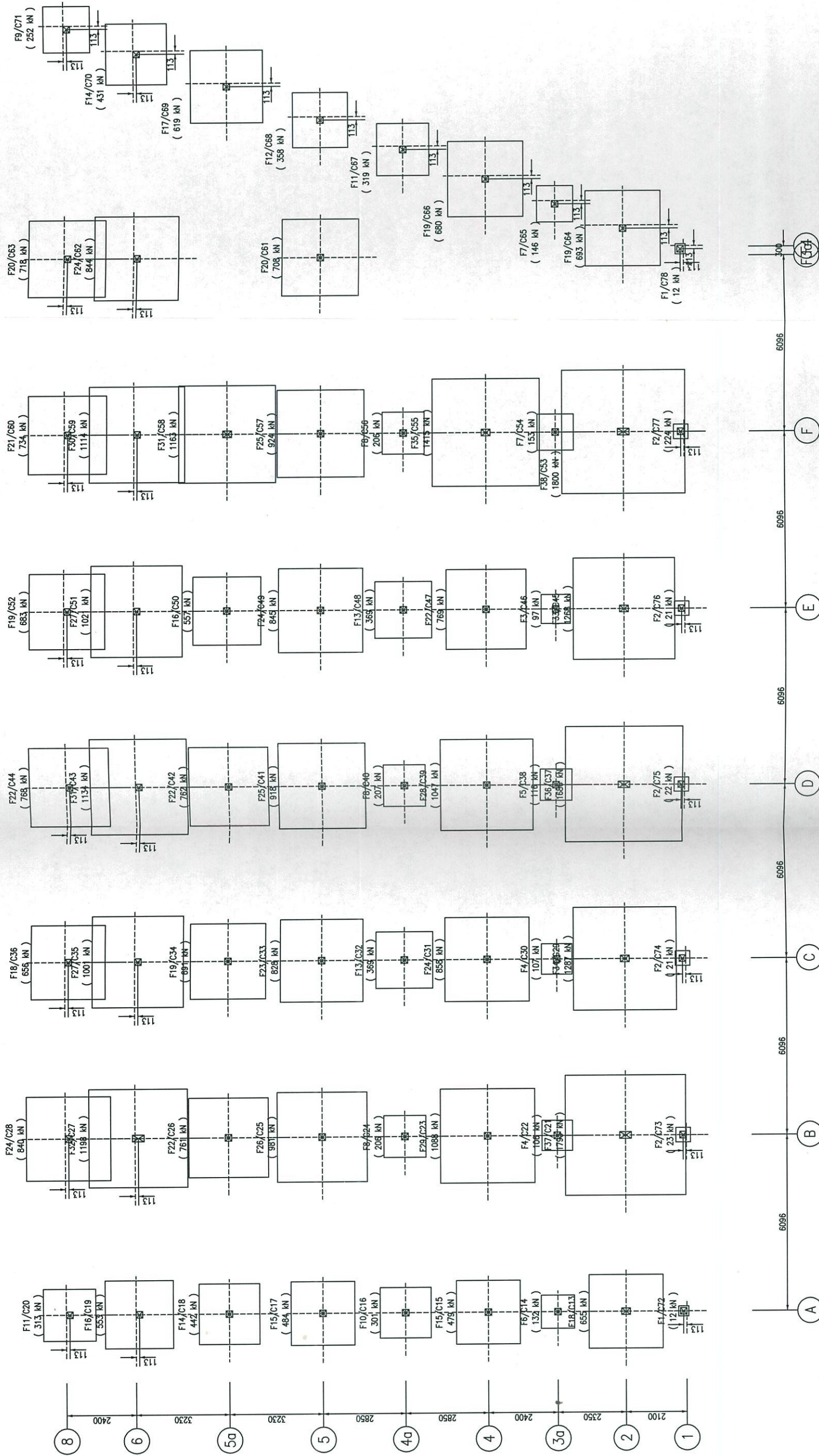
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- 1) Dictionary of Construction. (2014, July 18), Definition of Continuous Foundation. Retrieved from [www\\_dictionaryofconstruction.com/definition/continuous-footing](http://www_dictionaryofconstruction.com/definition/continuous-footing).

### Book.

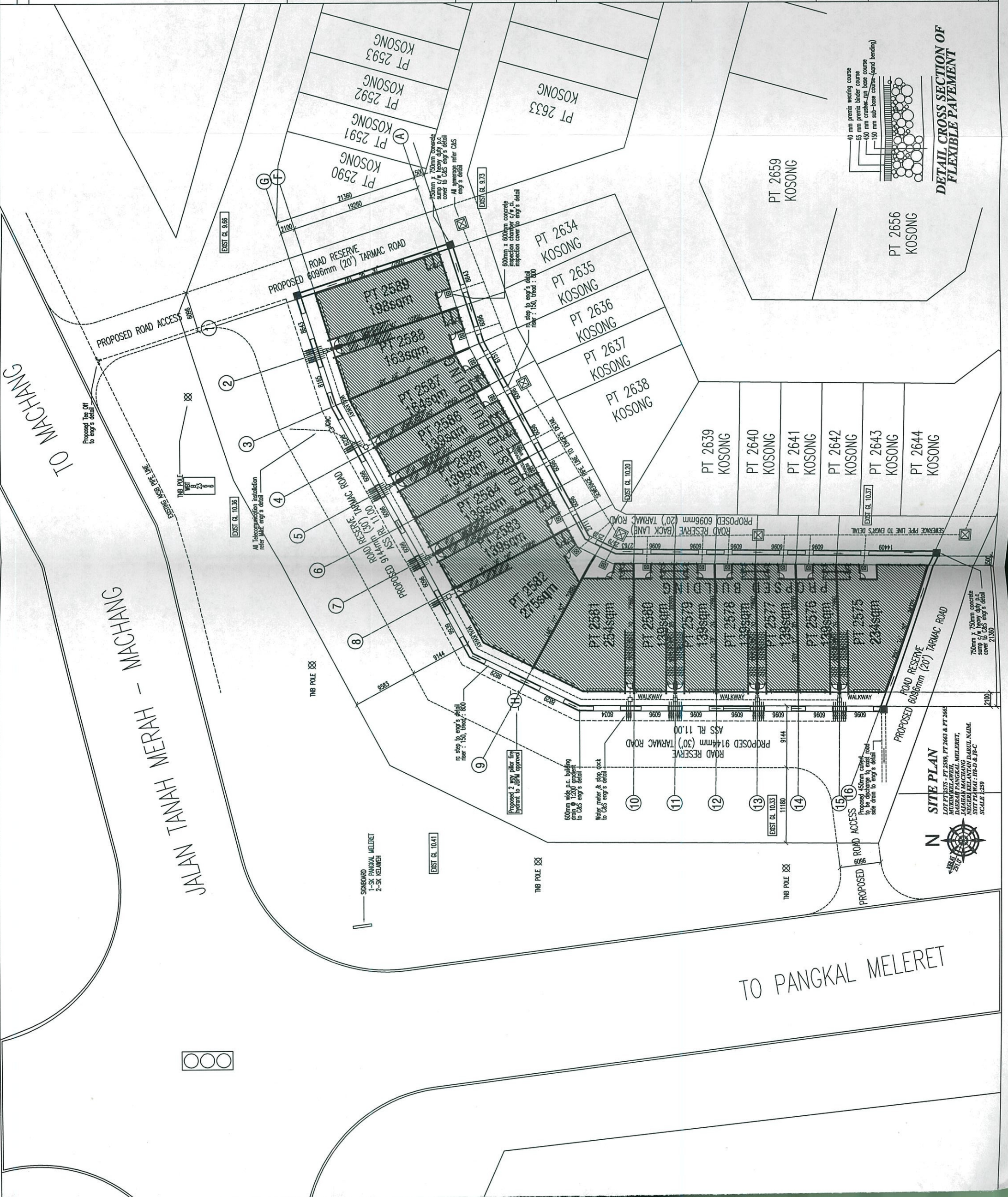
- 1) Yaacob,R. (Ed.).(2004). Design calculation, quantity taking off, bill of quantity, specifications and drawings. Kuala Lumpur.

## APPENDICES

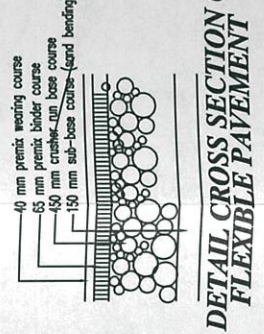


PAD FOUNDATION KEY PLAN  
(SCALE = 1 : )

<p><b>PINDAAN</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>R.U.L.</th> <th>DISKRIPSI</th> <th>TARIKH</th> <th>T/T</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	R.U.L.	DISKRIPSI	TARIKH	T/T									<p><b>CLIENT:</b></p> <p>LIM MAN LIH / A124931          NO K/P : 27/2010          PA NO : 27/2010          LOT 2828, JALAN DATO LUNDANG,          15200 KOTA BHARU,          KELANTAN.</p>	<p><b>ARCHITECT</b></p> <p><b>KUMPULAN PERUNDING</b>          (1988) SDN. BHD.          COMPANY NUMBER 166318-V          1, 2 &amp; 3, 2008, JALAN 2/140,          OFFICE 201, TUNJAYA PARK,          15200 KOTA BHARU,          KELANTAN.          (6 LINES) FAK (603) 7636121</p>	<p><b>ENGINEER CIVIL &amp; STRUCTURE</b></p> <p><b>TEGUH SETIA CONSULT</b>          (KELANTAN)          PT 2505, TINGKAT 2, KOTA KEDANGAN,          JALAN HOSPITAL,          15200 KOTA BHARU, KELANTAN.          TEL: 603-7636121          EMAIL: teguhsetiaconsult@yahoo.com          Jaminan Perunding Asean Dan Struktur</p> <p style="text-align: right;">P. Eng. MUEM</p>	<p><b>TYPE OF DRAWING:</b></p> <p><b>FOUNDATION AND GROUND FLOOR PLAN</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DESIGN BY</td> <td>ASWAI</td> <td>DRAWN BY</td> <td>KHARI</td> </tr> <tr> <td>CHECKED BY</td> <td>MFZ</td> <td>APPROVED BY</td> <td>IMAK</td> </tr> <tr> <td>DATE</td> <td>MAY 2014</td> <td>SCALE</td> <td>1:100</td> </tr> <tr> <td>DRAWING NO.</td> <td colspan="3">TSC / 1347 / S / 1 (WING KANAN)</td> </tr> </table>	DESIGN BY	ASWAI	DRAWN BY	KHARI	CHECKED BY	MFZ	APPROVED BY	IMAK	DATE	MAY 2014	SCALE	1:100	DRAWING NO.	TSC / 1347 / S / 1 (WING KANAN)			<p><b>PROJECT:</b></p> <p>CADANGAN MEMBINA DAN MENYIAPKAN          15 UNIT KEDAI PEJABAT 3 TINGKAT DI ATAS          LOT PT 2575 - PT 2589,          DAN 1 UNIT STP DI ATAS LOT PT 2665          1 UNIT TNB SUBSTATION DI ATAS LOT PT 2663,          MUKIM KELAWEH,          DAERAH PANGKAL MIELEFET,          JAJAHAN MACHANG,          NEGERI KELANTAN DARUL NAIM.</p>
R.U.L.	DISKRIPSI	TARIKH	T/T																														
DESIGN BY	ASWAI	DRAWN BY	KHARI																														
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DATE	MAY 2014	SCALE	1:100																														
DRAWING NO.	TSC / 1347 / S / 1 (WING KANAN)																																



**SITE PLAN**  
 LOT PT 2575 - PT 2589, PT 2643 & PT 2645  
 MUKIM KELAWEH, MELERET,  
 DAERAH PANGKAL MELERET,  
 NEGERI KELANTAN DARUL NAIM.  
 STIP P14/W1 - IR-D & B-C  
 SCALE 1:250



TO PANGKAL MELERET

JAMNAN TANAH MERAH - MACHANG

TO MACHANG