



اَوْنَبُوْ سَيِّدِيْ تِيَكُوْ لَوِيْ مَبَارَا
UNIVERSITI
TEKNOLOGI
MARA

DEPARTMENT OF BUILDING
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING
UNIVERSITY TECHNOLOGY MARA
(PERAK)

SEPTEMBER 2014

It is recommended that the report of this practical training report prepared

By

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Entitle

Ground Beam Construction

Be accepted in partially fulfillment of the requirement in obtaining the 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 the extract and summaries for which the original references are stated in here prepared clearing a five month practical training session is submitted from 12th of May to 29th of September 2014 at Gerbang Nusajaya Sdn Bhd. It is of the as one of the requirements to pass the course DBN 307 and accepted as a partial fulfillment requirements for obtaining the Diploma in Building.

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Matric No. : 2012681772
Date : 29th September 2014

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ABSTRACT

This report based on observation and experience for five months on a construction site. This report will include with the introduction, company background, case studies, conclusions and recommendations. This report also deals with the way how to do the job at a construction site, especially the structure. The structure chosen is ground beams. This report will describe the process or the way how to do is work to make ground beam quality. Ground beam is a reinforced concrete beam for supporting walls, beams, etc., on or near the soil surface, itself, either directly resting on the ground or supported on both ends. This report will also describe the process or supplier that will be used to process works this ground beams incident. ground beams are usually not a problem but a problem making the materials used to make ground beams themselves as problems such as plywood used time to expand too quickly or brittle when exposed to the rain and others. This report will tell the solution that will be taken and will distinguish between the different materials used in construction site “Projek Perumahan Mampu Milik 2 Tingkat, Mutiara Rini”.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

The construction industry is an important sector of every economy. It also plays an essential role in socio-economic development. However, the industry has not been studied in detail. The few works on the industry which exist are peculiar to individual countries. Construction practitioners have devoted their attention to their individual projects. Thus, issues of concern to the industry (although they have implications for economy and efficiency on projects) have been ignored. Governments have lacked realistic and reliable information on the nature of the construction industry which is necessary to support and facilitate the formulation and successful implementation of policies for the industry.

Beam models have made it possible to solve a large number of engineering problems over the last two centuries. Early developments, based on kinematic intuitions (bending theories), by pioneers such as Leonardo da Vinci, Euler, Bernoulli, Navier, and Barre de Saint Venant, have permitted us to consider the most general three-dimensional (3D) problem as a one-dimensional (1D) problem in which the unknowns only depend on the beam-axis position. These early theories are known as engineering beam theories (EBTs) or the Euler Bernoulli beam theory (EBBT). Recent historical reviews have proposed that these theories should be referred to as the DaVinci, Euler; Bernoulli beams theory (DEBBT).

Many torsion-beam theories which are effective for different types of beam sections are known. Many refinements of original EBT kinematics have been proposed. Amongst these, the one attributed to Timoshenko in which transverse shear deformations are included should be motioned. The other refined theories mentions herein are those by Vlasov and by Wangner, both of which lead to improved strain/stress field description.

1.2 OBJECTIVE

This report is prepared to provide general construction of Method of Work For Structure Specific Ground Beam; hence the following objectives are as follow:

1. To identify the material and measurement used at site.
2. To identify the method statement of ground beam at site.
3. To identify the problem & solution for construction of ground beam.

1.3 SCOPE OF STUDY

Studies have been made in 258 units of semi-detached two-stored affordable housing that contains the phase 6J and 6K. 6J is divided into 24 blocks, for 6K is divided into 10 blocks. But the whole house was divided into two types, namely home MR82 & MR83 difference in design.

Study focuses on ground beam & slab. On site there are 2 types of ground beam & slab. The first type is none suspended and the other type is suspended ground beam and slab. Both were in the design. The design refers to the type of land use. There are 8 blocks in 6J using ground suspended beam & slab. Suspended beam & slab on ground design using foundation footing as upper structure sub structure because aspects of soil profile.

Ground beam could be further categorized into two types based on the type of slab that is going to be used. The type of slab that is going to be used depend on the type of foundation of the building used which are either pad footing foundation, or pile cap foundation. These depend on the soil profile on the site. Soil profile with a lower strength use piling as the foundation while soil with a greater strength will use pad footing as foundation

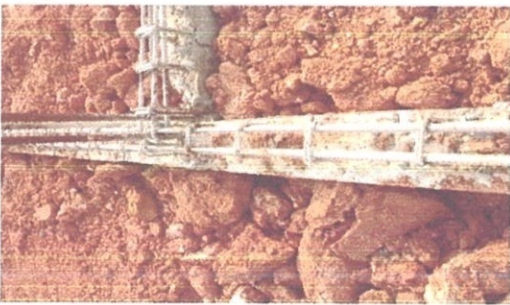


Figure 1.1 Suspended beam



Figure 1.2 Non suspended beam

A study has chosen to tell and focuses in more detail on the ground beams only. Focused at MR83 (type of house). Study will also tell about on how to make ground beams and materials used for this study would solve the problems that arise.

1.4 METHODOLOGY

1.4.1 Interview

Interview is the first and major method used to study the cases involved. Interview in fact increases theoretical knowledge directly of the exact situation. This method could embrace more than one party that involved in the construction; the site supervisor, site engineer and the workers who work in a particular field itself. Hence, information obtained is sufficient where no technical information required. Interview had been done to several figures related on construction. Information obtained shall be kept for future abstraction.

1.4.2 Observation

The next method applied is by observing visually and physically. The observation method is applied when there is no practical action required. Observation in advance, involving keep on eye the workmanship, the changes occurred, monitor the progress etc. Observation is priority for tests conducted and construction works which require abstraction of decision to be taken into account.

1.4.3 Literature review

Literature review is published information for specific topics through several mediums of reading materials. The information might be limited to particular year of its establishment therefore; the content might be irrelevant in the future. Despite of that, literature review gives clear ideas and information as it has been patterned in organized way that acts as a summary. Materials such as journals, online resources, and books give broader information. Application of this method commonly applied to discover the uncertain information and where the other methods could not be implemented.

2.0 COMPANY BACKGROUND

2.1 INTRODUCTION

GERBANG NUSAJAYA SDN BHD originated from humble beginning operating as a class 'F' contractor specializing in maintenance work since 1989.

Since then, the company has grown into a dynamic civil engineering and construction company providing vital support to key industrial sectors such as infrastructure development, building, construction, telecommunication and M&E works.

Equipped with wealth of experience and diverse technological expertise, our team offered a board spectrum of engineering services specializing in CIVIL WORKS, BUILDING & MECHANICAL & ELECTRICAL.

The company had obtained a class 'A' Bumiputera Building and Civil Engineering contractor registered with Pusat Khidmat Kontraktor (PKK) as well as a G7 contractor with the Malaysia Construction Industry Development Board (CIDB). It is therefore in a strategic position to bid for a substantial range of projects from both the Government and Private sector.

GERBANG NUSAJAYA SDN BHD has implemented a Quality Management System by complying to **ISO 9001:2008, ISO 14001:2004 & OHSAS 18001:2007** and has been certified by SIRIM QAS INTERNATIONAL.

The management adopts a professional and systematic approach, covering all aspects of planning, control and overall coordination to ensure smooth progress an successful completion of works while adhering to stringent safety standard and Quality Control.

In order to meet new challenges and to develop sustainable income in line with the company strategy, GERBANG NUSAJAYA SDN BHD is also extending their area of interest

into cooperation and joint venture with foreign expertise of both parties' investors and construction companies for sophisticated and specialized work for mutual benefits.

2.2 COMPANY PROFILE

2.2.1 The Gerbang Nusajaya Sdn Bhd Company Profile

Name Of Company	Gerbang Nusajaya Sdn Bhd
Headquarter	No. 6, Jalan Kempas Utama 1/1, Taman Kempas Utama, 81300 Johor Bahru, Johor Darul Ta'zim, Malaysia.
Director	Dato' Hj Hassan bin Madon
Legal Form	Private limited
Incorporation date	1994
Status	Listed
Equity Participant	100% Malaysian Bumiputera
Capital Structure	Authorized Capital : RM 10 Million Paid-up Capital : RM 3 Million
Website	http://www.gerbangnusajaya.com
Email	gn.sb01@yahoo.com.my
Company Registration Code	294625-D
Tel	
Fax	






Table 2.1 Gerbang Nusajaya Sdn. Bhd Company Profile






Source: Gerbang Nusajaya Sdn Bhd






2.4 LIST OF PROJECT

2.4.1 Completed Projects

Table 2.2 Shows past projects under the management of Gerbang Nusajaya Sdn. Bhd.

NO	PROJECT	CLIENT	CONTRACT PERIOD	CONTRACT VALUE (RM)
1.	Proposed to Modify the office of TM-Touch	 TM-Touch	26-06-1999 To 26-09-1999	120,000
2.	Develop and prepare a 4 Storey Block of Academic Buildings, Laboratory Building, Skills Building, 1 Storey Block of Canteen, Workshop skills and other related work in SekolahKebangsaanBatu 34, Jalan Johor, Pontian, Johor DarulTa'zim.	 JKR	15-11-1999 To 01-04-2001	7,116,489
3.	Proposed renovation and addition to the existing shop house at No. 3B, Level 2, JalanKenanga 1, Taman Kenanga, JalanParitMesjid, 82000, Pontian Johor.	 Celcom	23-04-2001 To 21-08-2001	100,000
4.	Proposed to repair and modify Hostel Block and Related work on Lot 2067, JalanTampoi, Johor Bahru, JohorDarulTa'zim.	 CIDB	02-01-2001 To 09-04-2001	1,620,123
5.	Proposals to Build and Prepare SekolahMenengah Agama in KesangTasekmuar, Johor.	 Johor Corp.	01-03-2001 To 11-09-2002	8,601,846

6.	Construct and Complete the Extension Building 1 Block, assembly hall at Sekolah Menengah Dato' Sulaiman Yunus, Pontian, Johor.	 JKR	10-04-2001 To 26-11-2001	1,853,571
7.	Proposed modification and redevelopment on lots 2066 and 2067, Jalan Tampoi, mukim Tebrau, Johor Bahru, Johor Darul Ta'zim.	 CIDB	22-10-2001 To 18-05-2002	4,550,159
8.	Proposed to Build 1,500 Units 5 level flats for Program Perumahan Rakyat (PPR- Hire) in Taman Sri Stulang, Johor Bahru, Johor.	Tebrau Bay Sdn Bhd	01-07-2005 To 01-09-2006	22,680,000
9.	Johor State New Administrative Centre, Bandar Nusajaya, Johor. Main Building Works for Proposed Dewan Negeri Johor. Sub Contract for Brickwork, Plastering, Skim Coat and Installation Timber Door	 UEM Builders	15-05-2006 To 14-10-2006	2,160,000
10.	Johor State New Administrative Centre, Bandar Nusajaya, Johor. Ancillary Building for Proposed State department Complex (Parcel 25) Sub Contract for dividing primary substrations and TNB.	 UEM Builders	08-07-2006 To 22-11-2006	2,436,387
11.	Kolej Sains Kesihatan Bersekutu, Johor Bahru. Package 1 – Zone Academic Package 2 – Zone Hostel Package 3 – Zone Quarters	 IBUZAWA	01-05-2006 To 01-07-2007	39,383,412

12.	Proposal of Building and Completing Sekolah Kebangsaan Kota Masai 2, Johor.	 KPM	12-03-2007 To 11-07-2008	13,500,000
13.	Johor State New Administrative Centre, Bandar Nusajaya, Johor. Piling Caps for proposed state department complex (parcel C25)	 UEM Builders	25-05-2006 To 25-07-2006	886,918
14.	Johor State New Administrative Centre, Bandar Nusajaya, Johor. Superstructure and Associated Works for Proposed state department complex (parcel 25) Sub Contract for Reinforced Concrete Structure and associated works and mechanical & electrical works for east wing.	 UEM Builders	09-03-2006 To 06-09-2006	6,621,067
15.	Proposed to Relocated of Flood victims in district Kluang, Johor, Over Part PTD 11033 Area of 20 Acres in the Kampung Gajah, Batu 10, Jalan Kluang-Mersing, Daerah Kluang, Johor.	 SPNB	24-11-2008 To 31-12-2010	11,300,000
16.	Construction and Completion of two (2) Block Building (Replacement) Sec. Four (4) Level & Other Related Work for the National School Sri Pantai, Mersing, Johor DarulTa'zim.	 JKR	18-08-2009 To 19-12-2010	9,860,000

17.	Proposed Development at the boarding school on the part of Lot PTD 154971, MukimPulai, Daerah Johor Bahru, Johor DarulTa'zim	 Iskandar Investment Berhad	27-05-2010 To 26-12-2011	40,845,000
18.	Proposed Construction and Completion of Multi-Varsity Enterprise Complex on the part of Lot PTD 154973 in Educuity, Iskandar Malaysia, Johor DarulTa'zim – Phase 1	 Iskandar Investment Berhad	24-02-2011 To 23-04-2012	27,568,000

2.4.2 PROJECT IN PROGRESS

TABLE 2.3 shows the ongoing project still under construction

NO	LIST OF PROJECT	CLIENT	CONTRACT PERIOD	CONTRACT VALUE
1	Proposed Construction of Super Structural Work for Shopping Centers (podium) 3 floors and Car Parking (podium) 5 levels and Associated Works on Lot 14530, Jalan Tun Abdul Razak, Johor Bahru, Johor Darul Ta'zim.	Damansara Assets Sdn Bhd	07/05/2012-31/03/2014	RM 191,148,752.75
2	Proposed Development and Construction of YPJ main campus for YPJ Holdings Sdn. Bhd., 100 acres, on part of Lot PTD 10201 HS (D) 28628, Mukim Hulu Sungai Johor, Kota Tinggi, Johor Darul Takzim.	YPJ Holdings Sdn. Bhd.	23/01/2013-22/06/2014	RM25,000,000
3	Proposed to Build and Upgrade Path from Felda Taib Andak to Felda Inas, Kulajaya, Johor.	Jabatan Kerja Raya Malaysia	15/12/2012-14/11/2014	RM13,417,700
4	Proposed Construction and Completion of Housing Projects Taman Saujana Putra on Lot 1042, Mukim Kesang Daerah Ledang, Johor Bahru.	Nariah Builders (M) Sdn. Bhd.	11/03/2013-25/05/2015	RM17,400,000
5	Proposal to Build 258 Housing Units Affordable Twin Containing : Phase 6J and 6K1, On 1770 and Part Lot 2987, Taman Mutiara Rini, Mukim Pulau, Daerah Johor Bahru (Package 2)	Mutiara Rini Sdn. Bhd.	25/11/2013-24/02/2015	RM41,800,000

6	Rancangan Tebatan Banjir Sg Bunus, Wilayah Persekutuan Kuala Lumpur- Menaiktaraf Kolam Takungan Banjir Sedia Ada Dan Kerja-Kerja Berkaitan Di Kg. Boyan Kuala Lumpur.	Jabatan Pengairan dan Saliran	Nov 2013 – 01/05/2015	RM 15,637,000.00
7	Cadangan Projek Ternakan Ikan Dalam Tangki Di Bawah Program Pembangunan Berimpak Tinggi, Zon Industri Akuakultur Di Atas Lot 6656, Kg. Badong, Mukim Bebar Daerah Pekan, Pahang.	Lembaga Kemajuan Ikan Malaysia	23 /04/2012 – 23/07/2013	RM9,300,000
8	Menyiapkan Kerja Tertinggal Bagi Melengkapkan Lengkongan Persimpangan Bertingkat Cloverleaf Di Jalan Masuk Ke Pusat Pentadbiran Baru Kerajaan Johor Di Nusajaya Dari Linkedua, Johor.	Jabatan Kerja Raya Malaysia	02/09/2013 - 01/03/2015	RM10,190,000
9	Menyiapkan Kerja-Kerja Terbengkalai di Perumahan Kastam Larkin, Johor Bahru, Johor	Jabatan Kerja Raya Malaysia	15/01/2014 – 29/12/2015	RM17,799,500.5

3.0 CASE STUDY

3.1 INTRODUCTION

Structure is the basis for the construction. Ground beams were focused in this study. Ground beam structure is extremely important in construction to strengthen a building.

Construction industry has a way that can make a structure in particular, ground beams strengthened with the type of wood, plywood, steel, concrete and so on.

Explanation for ground beam is a reinforced concrete beam for supporting walls, joints, etc. at or near ground level, itself either resting directly upon the ground or supported at both end by piers or meaning easy is ground sill.

Housing Project at site have two types of MR82 and MR83 home. The different of MR82 & MR83 is the structure design, the different is not obviously. Like example the length of GB1 at MR82 is 1600cm and the MR83 is 1650cm. The length depend on structure design.

3.2 PROJECT BACKGROUND



Figure 3.1 The illustration of “Rumah Berkembar Mampu Milik 2 Tingkat”

Source: Sample houses

Studies made in the housing project in Mutiara Rini, Johor Bahru. Housing built on the government's budget to the state of Johor to build affordable homes. Projects ‘CADANGAN MEMBINA 258 UNIT RUMAH BERKEMBAR MAMPU MILIK DUA TINGKAT YANG MENGANDUNGI FASA 6J DAN 6K’.

Construction at Mutiara Rini has 130 units of MR82, MR83 and 128 unit types. The project was done asunder Gerbang Nusajaya Sdn Bhd as Contractor and Mutiara Rini as Client. The project is worth RM41 billion.

The project has been running from early December 2013 and is likely to be completed in early February 2015 the project was led by the manager of the Project by Mr. Zainoddin bin Gimán.

This is plan of block at site Mutiara Rini:

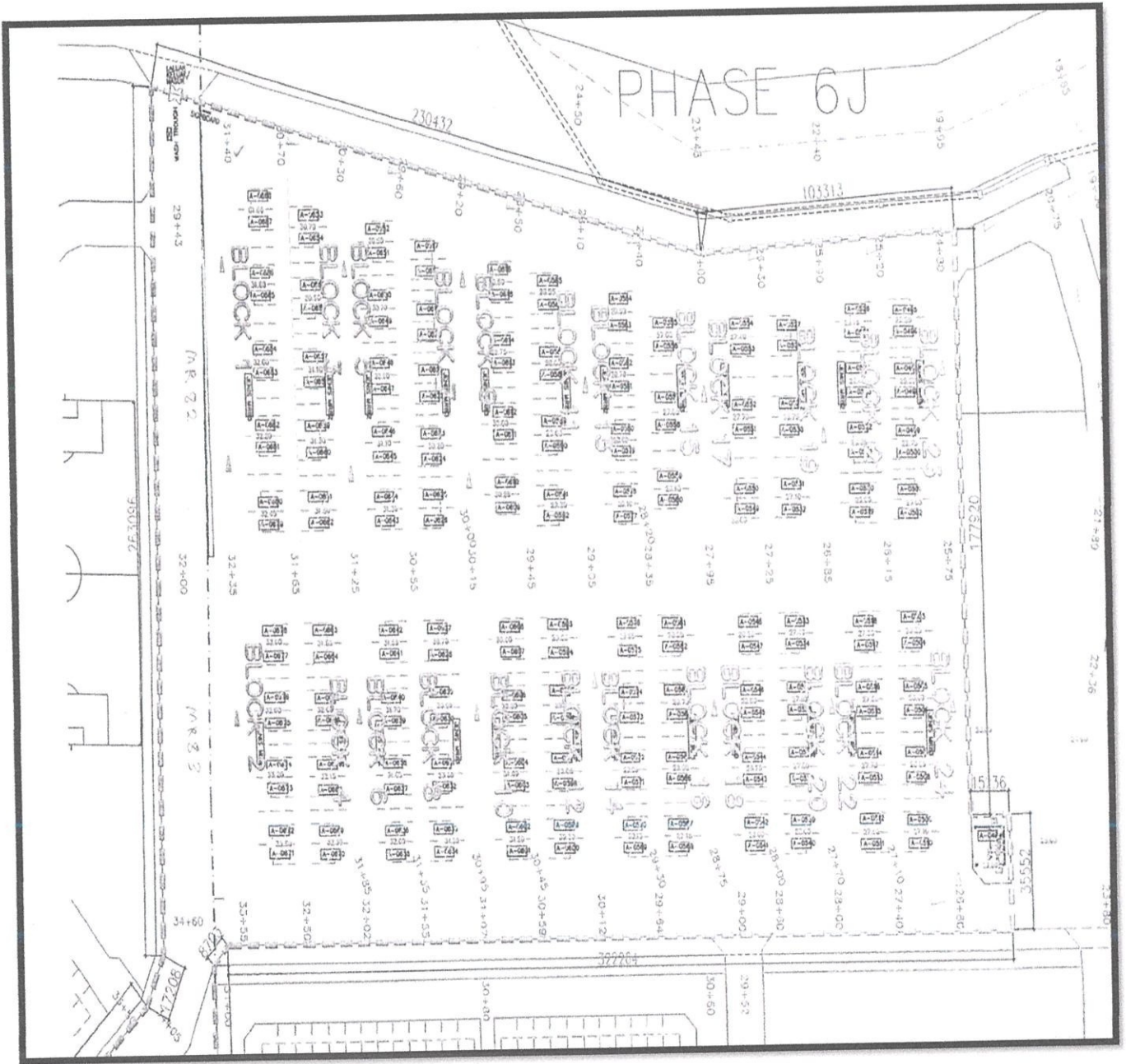


Figure 3.2 Plan of Block Phase 6J

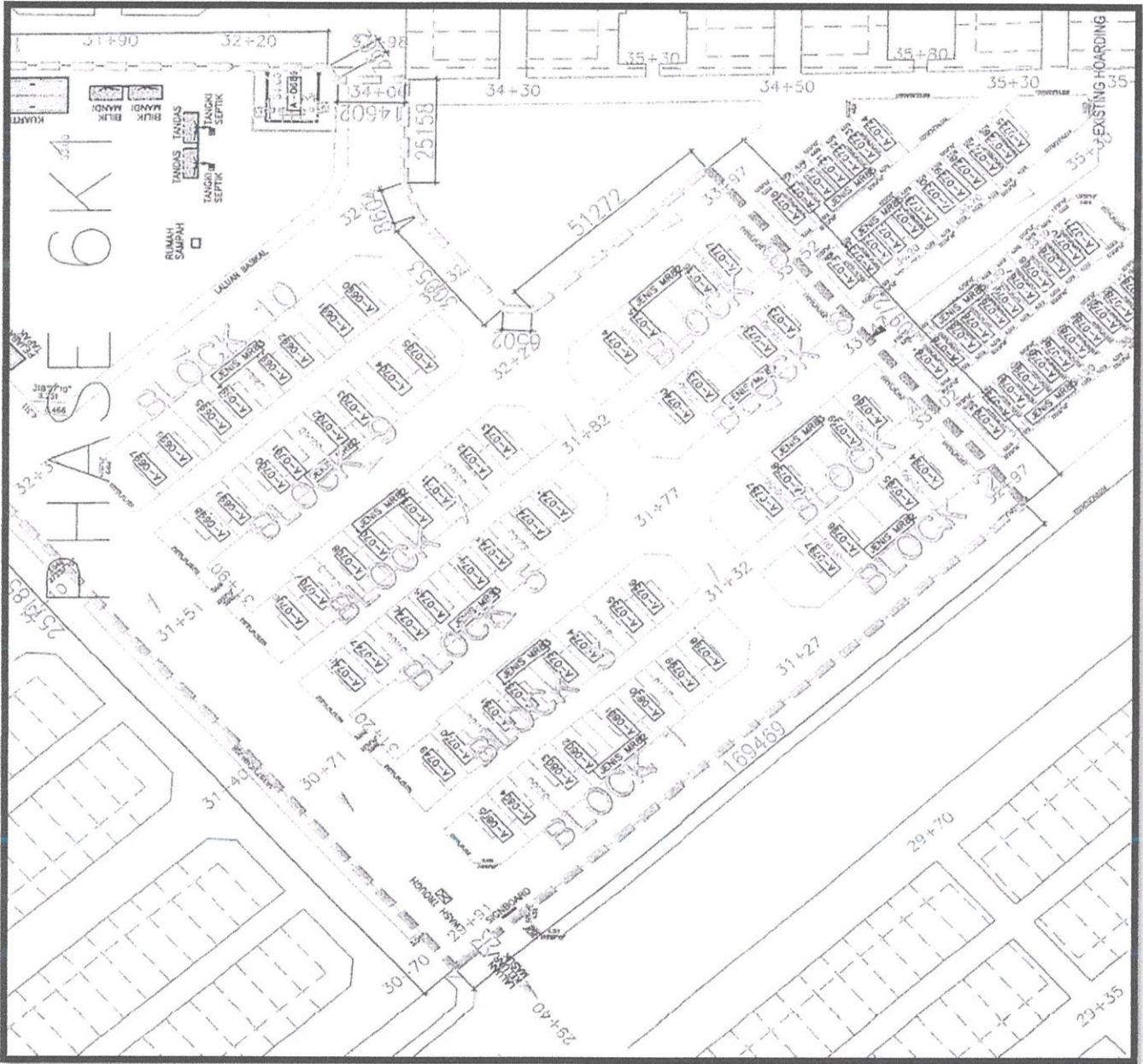


Figure 3.3 Plan of Block Phase 6K

3.3 SUPPLIER BACKGROUND

3.1 The Steel Supplier to Gerbang Nusajaya Sdn. Bhd.

Name of Company	Southern Steel
Addresses	2723, Lorong Perusahaan 12, Prai Industrial Estate, 13600 Prai, Pulau Pinang, Malaysia
Tel	
Fax	
Customer	Kenyin Hardware Sdn Bhd 148322-v Lot 4066, Jalan Riang 21, Taman Mulia Off JalanTampoi, Johor Bahru, 819200 Johor, Malaysia
Delivered to	Gerbang Nusajaya Sdn Bhd, Lot 1770 & 2987 Taman Mutiara Rini, 81300 Johor, Malaysia

Table 3.1 Profile steel supplier

DELIVERY ORDER

Southern Steel
A MEMBER OF THE IRIS GROUP

Southern Steel Berhad (5283-X)
3, Loring Perumahan 12,
1 Mukim Estate,
60 Pn, Pulas Perak, Malaysia.

CUSTOMER: TIPSND1
PUSAJA SELATAN SDN BHD 209307-X
OT 1618, JALAN DEWANI,
JF, JALAN TAMPOI,
BANDAR BARU,
81100 JOHOR, Johor, Malaysia

TO:
ERDANG NUSAJAYA SDN BHD
OT 1770 & 2987, TMN MUTIARA RINI
80000 JOHOR, Johor, Malaysia

D.O. NO: 8040801058
D.O. DATE: 04/06/2014
PLANT/SALES AREA: P101 / (S120/10/03)
SHIPMENT NO: 1140600539
WEIGHT TICKET NO: 1046001418
VESSEL NAME:
LORRY NO: JLT5422
TRANSPORTER:
WAKIL PENGANGKUTAN KWONG HENG SDN
CONTACT PERSON/NO:
ZABIDI

PO NO	MATERIAL DESCRIPTION	QTY	UOM	WEIGHT (MT)
11 82075086	MALAYSIA STD (S12) 0250 PG 1000 STD) 22 800 X 118 TC D20T1408	1,458	PC	12,248
		3-	PC	5,822-
				12,218
12 82075086	MALAYSIA STD (S12) 0250 PG 1000 STD) 18 800 X 118 TC	1,484	PC	18,162
TOTAL		4,137	PC	36,578

Please provide name and IC no once goods have been received

Name: ILHAM B. MOHD HANIFFAH

IC no: 8180127-15-5919

Recipient's Name & IC No

RECEIVED
05 JUN 2014

SOUTHERN STEEL BERHAD

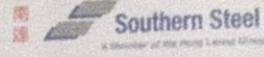
011-22222222
011-22222222

011-22222222

Figure 3.2 Example Delivery Order from Steel Supplier

Mill Certificate

Southern Steel Berhad (5283-X)
 3725, Leong Ferussah 12,
 Free Industrial Estate
 15600 Prai, Pulau Pinang, Malaysia



Customer : SPKUSA BELTAN SDN BHD 909507-X LOT 1618, JALAN SEMBIL, OFF JALAN TAMPOI, JOHOR BARU, 81100 JOHOR, Johor, Malaysia	Certificate No: 0000196397 Date of Issue: 04.06.2014 Delivery Order No: S050601658 Delivery Date: 04.06.2014 Order No: 4042600111	Destination : GERBANG AJAJAYA SDN BHD LOT 1770 & 2957, TUN MUTIARA KINI 05000 JOHOR, Johor, Malaysia
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ITEM CODE STOCK DESC	ITEM	GRADE	QTY	Chemical Composition (%)														Physical / Mechanical Properties								
				C	Mn	P	S	Si	Al	Ni	Cr	Mo	Fe	As	Sb	Bi	CE	STRENGTH EN005 RECT AREA	ELONG RECT AREA	TENSILE STRENGTH	YIELD STRENGTH	ELONG 50MM	R.A	WELDING TEST	REWORK TEST	REWORK TEST
				0.02	0.05	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	MPa	%	MPa	MPa	%	%			
MS14-234-0000 MALAYSIA 372 5283-X S050601658 074	1.00	SPKUSA 1	3	0.02	0.05	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	33	0.28	76.3	0.57	195	518	24		Passed	Passed	MS14-234-0000 S050601658 074
MS14-234-0000 MALAYSIA 372 5283-X S050601658 074	1.00	SPKUSA 1	3	0.02	0.05	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	33	0.28	76.3	0.57	195	518	24		Passed	Passed	MS14-234-0000 S050601658 074
MS14-234-0000 MALAYSIA 372 5283-X S050601658 074	1.00	SPKUSA 1	3	0.02	0.05	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	33	0.28	76.3	0.57	195	518	24		Passed	Passed	MS14-234-0000 S050601658 074
MS14-234-0000 MALAYSIA 372 5283-X S050601658 074	1.00	SPKUSA 1	3	0.02	0.05	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	33	0.28	76.3	0.57	195	518	24		Passed	Passed	MS14-234-0000 S050601658 074

THE ABOVE DATA OBTAINED BY ALL THE TESTS PERFORMED TO THE SATISFACTION OF THE CUSTOMER.

Printed On: *Hot*

APPROVED SIGNATORY
 CHAN HONG WENG
 QUALITY ASSURANCE DEPARTMENT

Southern Steel Berhad (5283-X)
 3725, Leong Ferussah 12, Free Industrial Estate
 15600 Prai, Pulau Pinang, Malaysia

Figure 3.3 Example Mill Certificates 1

Mill Certificate

Southern Steel Berhad (5283-X)
 2723, Lorong Perusahaan 12,
 Prai Industrial Estate
 13600 Prai, Pulau Pinang, Malaysia

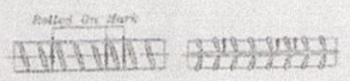


Customer : IPMSJA SELATAN SDN BHD 209307-X LOT 1618, JALAN DEWANI, OFF JALAN TAMPOI, JHOB BARU, 81100 JOHOR, Johor, Malaysia	Certificate No: 0000196397 Date of Issue: 04.06.2014 Delivery Order No : 604060105B Delivery Date: 04.06.2014 Order No: 4040600111	Destination : GERBANG NUSAJAYA SDN BHD LOT 1770 & 2987, TMN MUTIARA RINI 06000 JOHOR, Johor, Malaysia
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STOCK CODE STOCK DESC	LGTN	BATCH NO.	QTY	Chemical Composition (%)														Physical / Mechanical Properties															
				C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Al	B	Fe	Ca	SPHCT	MASS PER SECT AREA	YIELD STRENGTH	TENSILE STRENGTH	ELONG	R.A	BENDING TEST	REBEND TEST	SPECIFICATION							
AAC910001A10000 MALAYSIA STD H12B 800 P& 10MM STD	12.00	610108382	8	0.00		0.005		0.005		0.005		0.005		0.005		0.005		0.005		0.005		0.005		0.005		0.005		0.005		0.005		0.005	

We hereby, and hereby intend to do this certificate conform to the specification as stated.

APPROVED SIGNATORY



ISO9001:2008 CERTIFIED REVISION 03
 EFFECTIVE DATE: 01 MAY 2013, OBSOLETE DATE: 1 MAY 2013

CHAY WONG HONG
 QUALITY ASSURANCE DEPARTMENT

Figure 3.4 Example Mill Certificates 2

3.2 The Plywood Supplier to Gerbang Nusajaya Sdn. Bhd.

Name of Company	Combi Trading Sdn Bhd
Addresses	No. 2 Jalan Gemilang 1, Taman Perindustrian Maju Jaya, 81300 Johor Bahru, Johor, Malaysia
Tel	
Fax	
Customer	WM Buildmart Trading Sdn Bhd No. 15A, Jalan Impian Emas 5/6 Taman Impian Emas, 81300 Johor Bahru, Johor
Co. No.	694533-X
Delivered to	Gerbang Nusajaya Sdn Bhd, Lot 1770 & 2987 Taman Mutiara Rini, 81300 Johor, Malaysia

Table 3.2 Profile plywood supplier

COMBI TRADING SDN. BHD. 康美私人有限公司 (239418)

(A Subsidiary of Dominant Enterprise Berhad)
 NO. 2 JALAN GEMILANG 1, TAMAN PERINDUSTRIAN MAJU JAYA,
 81300 JOHOR BAHRU, JOHOR, MALAYSIA.
 TEL : MUAR : TEL : Kuantan : TEL :
 FAX : FAX : FAX :
 E-mail : marketing@combijb.com.my
 E-mail : bripanet@tm.net.my
 E-mail : combikt@yahoo.com.my

Delivery Order No. 786665

M/S **WM BUILDMART TRADING SDN. BHD.**
 NO. 15A, JALAN IMPIAN EMAS 5/6,
 TAMAN IMPIAN EMAS,
 81300 JOHOR BAHRU,
 JOHOR.
 (Co. No. 694533-X)

Date : 11/03/2014
 Buyers Ref: B/14030187
 Term : 60 DAYS

receive per Lorry No. WFE/783 the undermentioned commodity in good order and condition

SPECIFICATION	Quantity	Unit Price	Amount
<p>PLYWOOD</p> <p>1. 12MM 4' X 8' X 7 STAR PLYWOOD</p> <p>GOODS DELIVERED TO: C/O GERBANG NUSAJAYA SDN BHD TAMAN MUTIARA RINI, G.PATAH. T8/2013 SHAFIQ</p>	300 PCS		

No claim will be entertained for defective quality, shortage or damages unless we receive notification within seven days from date of delivery. Interest of 1.5% per month will be charged for account overdue.
 No Cash Payment allowed to be collected by any of our representative.
 All payment must be made by crossed cheques & Account Payee to "COMBI TRADING SDN. BHD."

FOR COMBI TRADING SDN. BHD.		
Issued By	Checked By	Store Keeper

FOR TRANSPORTER
<p>Name: <u>Sam Khai Ming</u></p> <p>Chop & Signature</p> <p>I/We received the above commodity in good order and condition.</p> <p>Customer's Co</p>

Figure 3.5 Example Delivery Order from timber Supplier

1.3 The Concrete Supplier to Gerbang Nusajaya Sdn Bhd

Name of Company	Chin Hin Concrete (KL) Sdn. Bhd
Addresses	No a-1-9, Pusat Perdagangan Kuchai, No 2, Jalan 1/127, Off Jalan Kuchai Lama, 58200 Kuala Lumpur.
Tel	
Fax	
Delivered to	Gerbang Nusajaya Sdn Bhd, Lot 1770 & 2987 Taman Mutiara Rini, 81300 Johor, Malaysia

Table 3.3 Profile Concrete Supplier



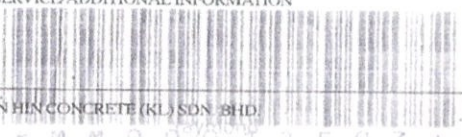
CHIN HIN CONCRETE (KL) SDN. BHD. (1981796-D)
 No A-1-9, Pusat Perdagangan Kuchai, No 2, Jalan 1/127, Off Jalan Kuchai Lama, 58200 Kuala Lumpur.
 Tel (O) :
 Plants : Batakong : Bangs : Semenyih :
 Salak : Klang : Pulau Meranti :
 Kinrara : Nilai 3 :



Delivery Order

Ground Floor Column CK3

PLANT :

PLANT NIA	TIME 10:50 AM	DATE 27/09/2014	ACCOUNT 3000/G20	TRUCK 3959	DRIVER MAHJEN	DOCKET NUMBER MM/0312503
CUSTOMER NAME GERBANG NUSA JAYA 258 UNIT DOUBLE STOREY MUTIARA RINI JOHOR <i>(PTD 197818-PTD 197819)</i>			DELIVERY ADDRESS 258 UNIT DOUBLE STOREY MUTIARA RINI JOHOR			
SPECIFICATION BS 5328	CEMENT TYPE OPC	MAX AGGREGATE AGG SIZE (mm)	ADMIXTURE TYPE	Characteristic Strength @ 28 day (N/mm ²)	SPECIFIED SLUMP (mm)	
THIS LOAD (m ³)	TOTAL ORDER (m ³)	PROGRESSIVE TOTAL (m ³)	LEAVE PLANT (m ³)	ARRIVE JOB SITE	START DISCHARGE	
			FINISH DISCHARGE	LEAVE SITE	ARRIVE PLANT	
OTHER SERVICE/ADDITIONAL INFORMATION 			NOTE : ANY COMPLAINT OF QUANTITY AND QUALITY MUST BE INFORMED TO THE OFFICE WITHIN 7 DAYS. RECEIVED IN ACCORDANCE WITH THE STANDARD CONDITIONS OF SALES AND DELIVERY.			
FOR CHIN HIN CONCRETE (KL) SDN. BHD. * M M O D O T 2 5 0 3 *			CUSTOMER (CHOP AND SIGNATURE) NAME IC NO			



CUSTOMER COPY

A231177

Figure 3.6 Example Delivery Order from Supplier

Material used to construct ground beam

3.4 ABOUT STEEL

Habits sub-contractor see structure drawing first before doing job work cutting and installing reinforcement bars. The drawing is a ground beam structure and focus in MR83 (type of house) using footing type.

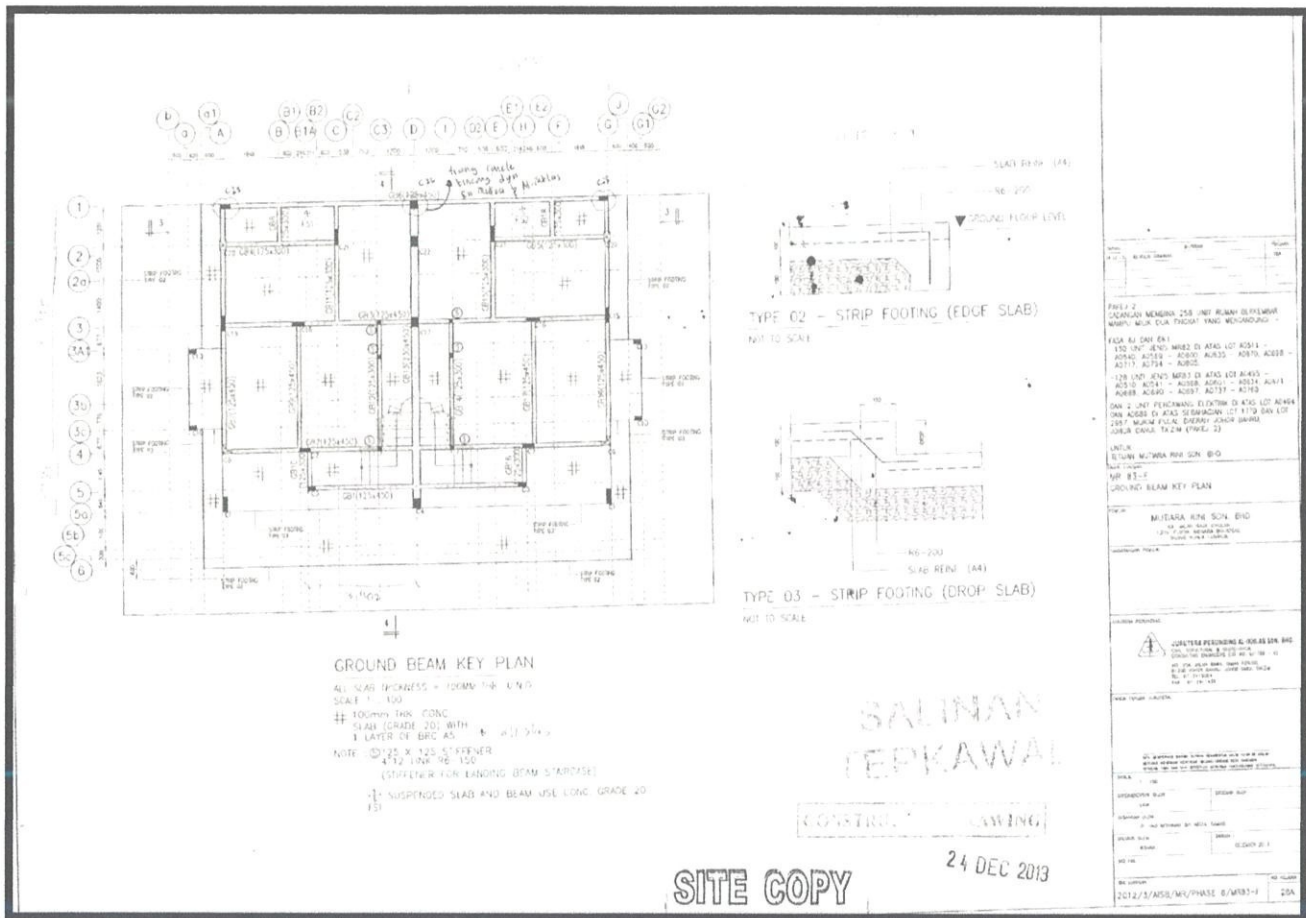


Figure 3.7 Example of key plan structure drawing MR83 (Footing)

Job cuts and ground mounting beam (reinforcement bar) structure following the drawing below.

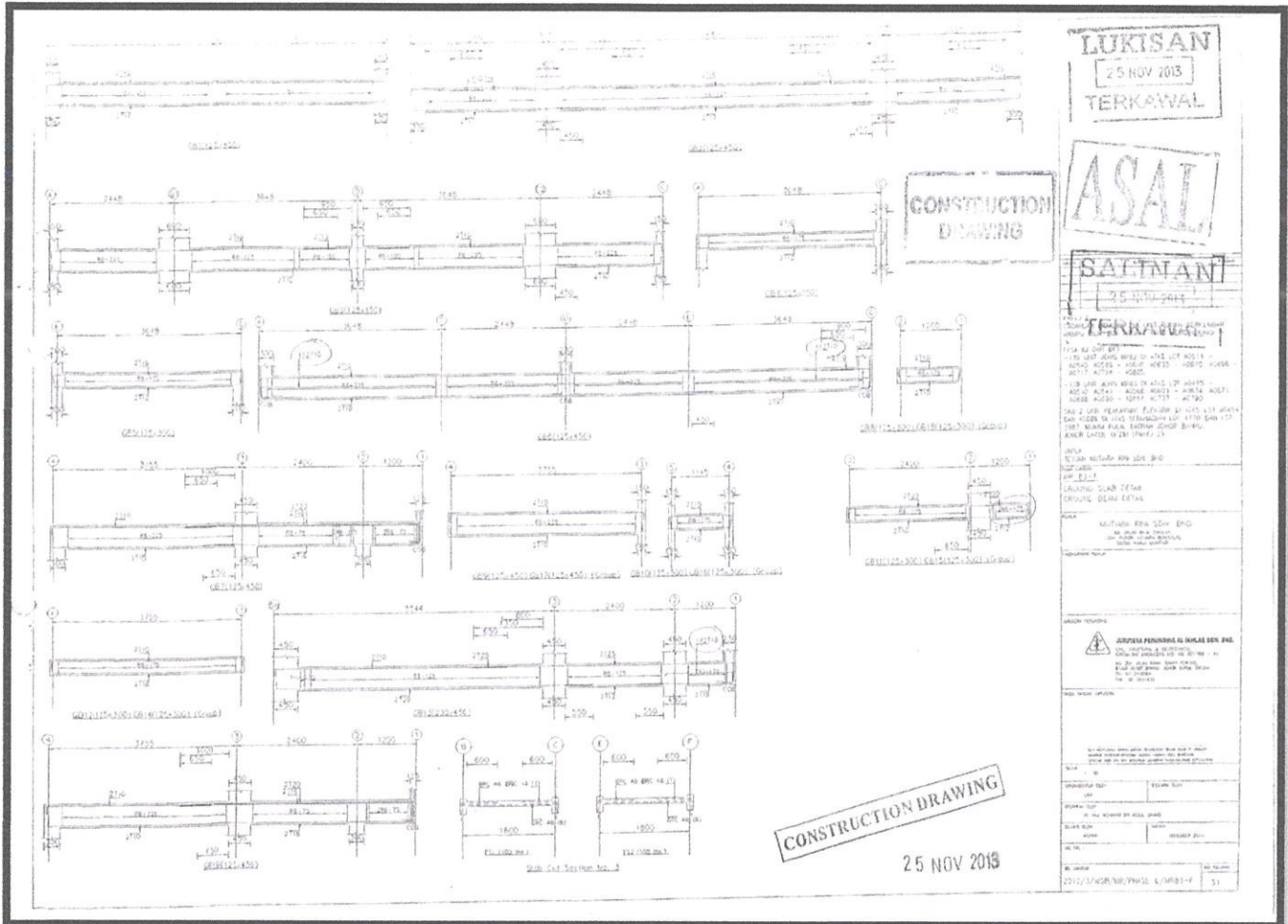


Figure 3.8 Example of Ground Beam MR83 (Footing)

To reading the measurement on this plan, must follow this step.

Example GB1 (125 X 450).

1. First it is necessary to look at the ground plan key beam. Ensure the existence of a grid line in GB1.

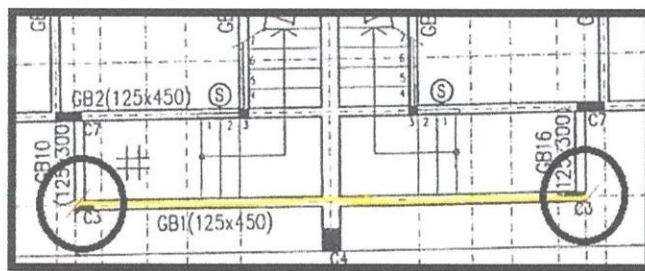


Figure 3.9 Ensure the grid line

2. Make sure the size of the GB1.

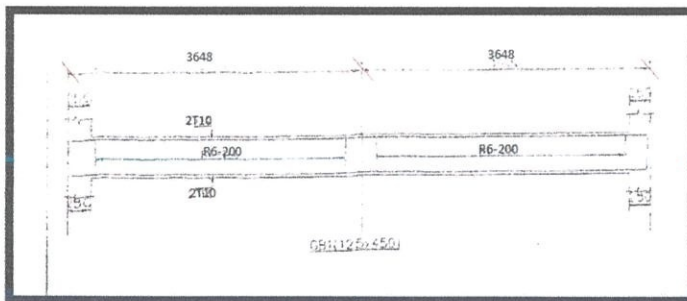


Figure 3.10 Length of GB1 (Total length = 7296)

3. Check the type of reinforcement bars used by GB1.

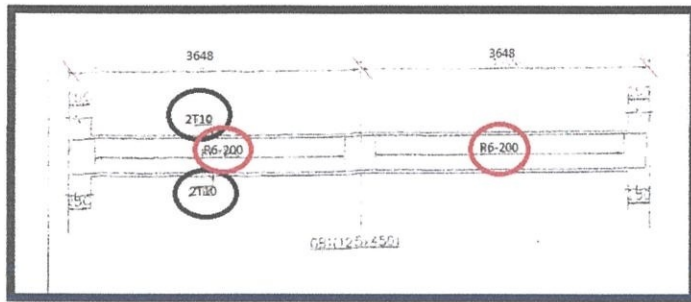


Figure 3.11 The type of Reinforcement Bar

Note: R6-200: R6 (type of Reinforcement Bar), 200 (distance between the link)

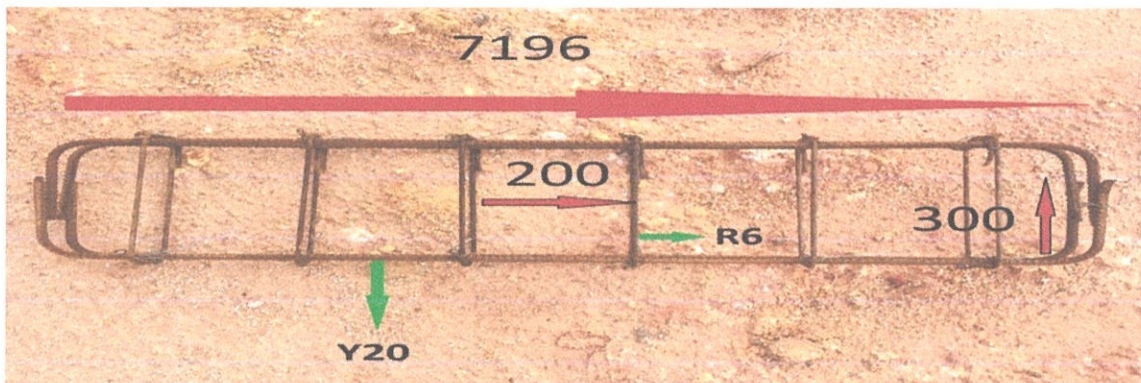


Figure 3.11 The measurement for Reinforcement Bar

CALCULATION: Length of GB1 = 7296

Block spacer = 100 (rejected left and right)

Total = 7196

3.5 ABOUT TIMBER & PLYWOOD

At site, study finds foster Ground Beam formwork for using plywood and 1x2 woods. Size is 12mm plywood.

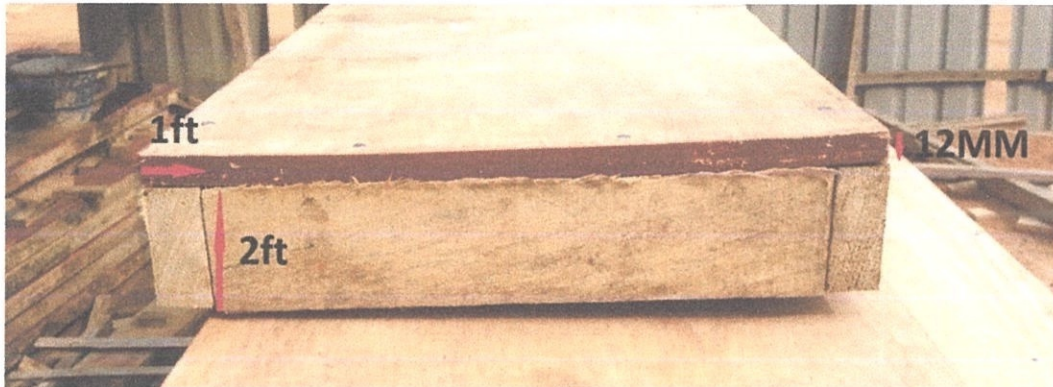


Figure 3.12 The measurement for timber and plywood

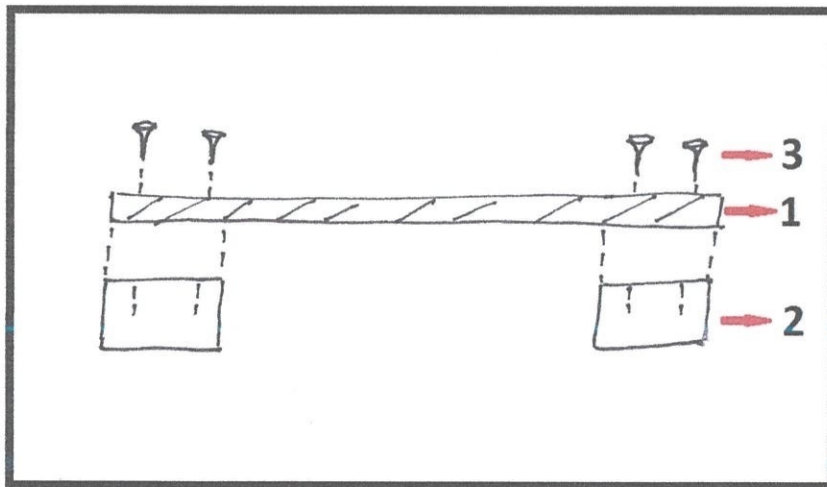


Figure 3.13 Step of formwork works

To build formwork, length and height should be in accordance with structure drawing.



Figure 3.14 Measurements of Formwork

3.5.1 Advantages of Plywood

Plywood is constructed of layers of wood glued together at right angles, which is what gives it its strength. This layering makes the plants resistant to warping, cracking and twisting, making it ideal for use in construction.

In addition to its strength, plywood is less expensive than similar boards made of full wood species, which makes it ideal as a construction planking material.

3.5.2 Disadvantages of Plywood

The layering effect in plywood makes it porous and susceptible to water damage if exposed over time. Plywood becomes heavy when wet and should be covered if left outside to reduce the risk of water damage.

3.6 ABOUT CONCRETE

Concrete is a building material made from a mixture of broken stone or gravel, sand, cement, and water, which can be spread or poured into molds and forms a stone-like mass on hardening.

Concrete will be poured in the entire Ground Beam with Grade 25.



Figure 3.15 Shows the length of GB1 for concreting

Example of M-25 Concrete Mix Design

M-25 CONCRETE MIX DESIGN		
As per IS 10262-2009 & MORT&H		
A-		
1 Stipulations for Proportioning		
1	Grade Designation	M25
2	Type of Cement	OPC 53 grade confirming to IS-12269-1987
3	Maximum Nominal Aggregate Size	20 mm
4	Minimum Cement Content (MORT&H 1700-3 A)	310 kg/m ³
5	Maximum Water Cement Ratio (MORT&H 1700-3 A)	0.45
6	Workability (MORT&H 1700-4)	50-75 mm (Slump)
7	Exposure Condition	Normal
8	Degree of Supervision	Good
9	Type of Aggregate	Crushed Angular Aggregate
10	Maximum Cement Content (MORT&H Cl. 1703.2)	540 kg/m ³
11	Chemical Admixture Type	Superplasticiser Confirming to IS-9103
A-		
2 Test Data for Materials		

1	Cement Used	Coromandal King OPC 53 grade
2	Sp. Gravity of Cement	3.15
3	Sp. Gravity of Water	1.00
4	Chemical Admixture	BASF Chemicals Company
5	Sp. Gravity of 20 mm Aggregate	2.884
6	Sp. Gravity of 10 mm Aggregate	2.878
7	Sp. Gravity of Sand	2.605
8	Water Absorption of 20 mm Aggregate	0.97%
9	Water Absorption of 10 mm Aggregate	0.83%
10	Water Absorption of Sand	1.23%
11	Free (Surface) Moisture of 20 mm Aggregate	nil
12	Free (Surface) Moisture of 10 mm Aggregate	nil
13	Free (Surface) Moisture of Sand	nil
14	Sieve Analysis of Individual Coarse Aggregates	Separate Analysis Done
15	Sieve Analysis of Combined Coarse Aggregates	Separate Analysis Done
15	Sp. Gravity of Combined Coarse Aggregates	2.882
16	Sieve Analysis of Fine Aggregates	Separate Analysis Done

A-		
3	Target Strength for Mix Proportioning	
1	Target Mean Strength (MORT&H 1700-5)	36N/mm ²
2	Characteristic Strength @ 28 days	25N/mm ²
A-		
4	Selection of Water Cement Ratio	
1	Maximum Water Cement Ratio (MORT&H 1700-3 A)	0.45
2	Adopted Water Cement Ratio	0.43
A-		
5	Selection of Water Content	
1	Maximum Water content (10262-table-2)	186 Lit.
2	Estimated Water content for 50-75 mm Slump	138 Lit.
3	Superplasticiser used	0.5 % by wt. of cement
A-		
6	Calculation of Cement Content	
1	Water Cement Ratio	0.43
2	Cement Content (138/0.43)	320 kg/m ³
		Which is greater then 310 kg/m ³
A-		
7	Proportion of Volume of Coarse Aggregate & Fine Aggregate Content	
1	Vol. of C.A. as per table 3 of IS 10262	62.00%
2	Adopted Vol. of Coarse Aggregate	62.00%
	Adopted Vol. of Fine Aggregate (1-0.62)	38.00%




A-		
8	Mix Calculations	
1	Volume of Concrete in m ³	1.00
2	Volume of Cement in m ³	0.10
	(Mass of Cement) / (Sp. Gravity of Cement)x1000	
3	Volume of Water in m ³	0.138
	(Mass of Water) / (Sp. Gravity of Water)x1000	
4	Volume of Admixture @ 0.5% in m ³	0.00134
	(Mass of Admixture)/(Sp. Gravity of Admixture)x1000	
5	Volume of All in Aggregate in m ³	0.759
	Sr. no. 1 – (Sr. no. 2+3+4)	
6	Volume of Coarse Aggregate in m ³	0.471
	Sr. no. 5 x 0.62	
7	Volume of Fine Aggregate in m ³	0.288
	Sr. no. 5 x 0.38	
A-		
9	Mix Proportions for One Cum of Concrete (SSD Condition)	
1	Mass of Cement in kg/m ³	320
2	Mass of Water in kg/m ³	138
3	Mass of Fine Aggregate in kg/m ³	751
4	Mass of Coarse Aggregate in kg/m ³	1356
	Mass of 20 mm in kg/m ³	977
	Mass of 10 mm in kg/m ³	380


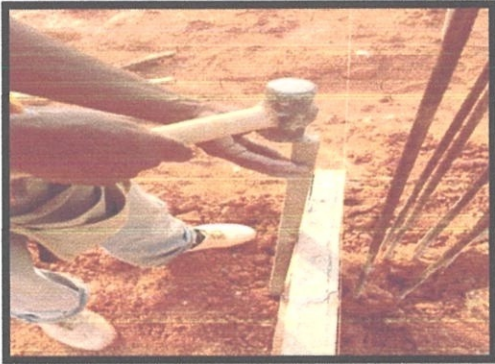

5	Mass of Admixture in kg/m ³	1.60
6	Water Cement Ratio	0.43

Table 3.4 Example of M-25 Mix Design

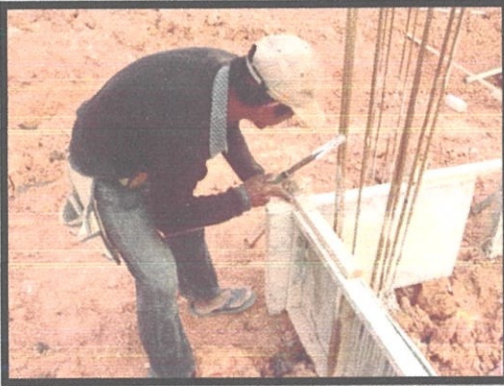
Source: Civil Engineering Portal

3.7METHOD STATEMENT

NO	Picture	Description
1	 <p data-bbox="177 864 679 931">Figure 3.16 Stump was backfilling to start ground beam work.</p>	<p data-bbox="703 483 1316 551">The work aliment/markung process to make ground beams. Backfilling required in advance.</p>
2	 <p data-bbox="177 1346 679 1413">Figure 3.17 Marking process based on drawing</p>	<p data-bbox="703 931 1316 1077">Construction workers begin their work with the marking according to drawing engineer. Besides that, labor will come a point in trying to secure the wood to make it easier to aliment.</p>
3	 <p data-bbox="177 1872 679 1942">Figure 3.18 To ensure the marking follow on engineer drawing</p>	<p data-bbox="703 1413 1316 1525">Labor ensure, nails, marked as aliment the same as in engineer drawing. Thereafter, labor will pull the threads to make the process of aliment.</p>

4	 <p>Figure 3.19 Install Plywood Formwork</p>	<p>After alignment already made. Next step is to install plywood formwork for ground beams. This step will be done by alignments that have been built. Process to install wood formwork must be equal to the height above the ground alignment.</p>
5	 <p>Figure 3.20 Lock the Plywood Formwork</p>	<p>After finished installing plywood formwork properly. Lock will be installed on the plywood formwork. To ensure that the Plywood formwork is not moving away from its size.</p>
6	 <p>Figure 3.21 Process installing plywood Formwork work</p>	<p>Thereafter, plywood formwork be installed to measured derailment that has been made in its entirety.</p>

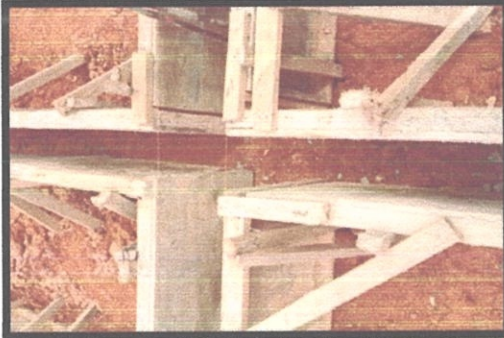
7



Process locks in each plywood formwork plywood formwork to ensure that no shifted from size.

Figure 3.22 Process locking Formwork Ground Beam

8



Ensure a measure of thickness, height blatant as in the drawing. This work is done after the completion of plywood formwork.

Figure 3.24 Ensure the thickness is correct

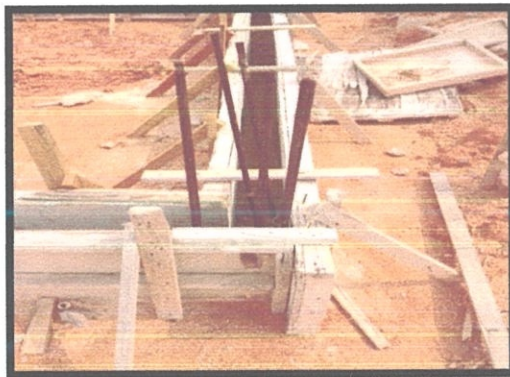











Figure 3.25 Ensure the starter bar is thickness with ground beam formwork

<p>9</p>	 <p>Figure 3.26 lean concrete installation</p>	<p>Thereafter, lean concrete or spacer bar placed to suspend their own does not touch the ground.</p> <p>Note: if you do not put a lean concrete or spacer bar, made of reinforcement bar bend. Because of the uneven surface.</p>
<p>10</p>	 <p>Figure 3.27 Steel already</p>  <p>Figure 3.28 Steel already at column area</p>	<p>Reinforcement bar be provided if all the above is in accordance with the engineer plywood formwork drawing. After that, the process will be checked by a consultant. By consultant will check the size of the iron in the drawing.</p>

<p>11</p>	 <p>Figure 3.29 Steel down between formwork ground beam</p>	<p>Reinforcement bar be reduced between plywood formwork after checking process approved by consultant. And RFI (Request For Inspection) will be issued.</p>
<p>12</p>	 <p>Figure 3.30 lock the formwork plywood</p>	<p>Thereafter, plywood formwork must be lock educing 1x2 woods. Purpose to not move position.</p>
<p>13</p>	 <p>Figure 3.31 Concrete Process</p>	<p>After it has been approved, the concrete work then be done. For concrete ground beams is G25N. Because the ground is super-structure.</p>

<p>14</p>	 <p>Figure 3.32 Concrete all Ground Beam area</p>	<p>Concrete work be done with the help of not more than 5workers,4 workers to ensure enough concrete in the ground beam sand. Another to process vibrator.</p>
<p>15</p>	 <p>Figure 3.33 Finish to concrete</p>	<p>After the completion of the concrete pour on the ground beams. Need to wait for 28 days to allow open formwork maturity in the ground beams.</p>
<p>16</p>	 <p>Figure 3.34 Opening plywood process</p>	<p>After 28 days the level of maturity of the concrete had been achieved. Formwork opening process is done.</p>


17	 <p data-bbox="175 649 614 694">Figure 3.35 Ground Beam view</p>	<p data-bbox="702 280 1316 358">When all form work in open view ground beams are shown in the picture.</p>
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Table 3.5 Method Statement Ground Beam

4.0 CONCLUSION & RECOMMENDATION

Conclusion, all of which is described in this report have met the necessary accuracy in the objective for this study, in this study we also can find suppliers that are often taken for setting up this project, but in this study focused suppliers who are often taken by Gerbang Nusajaya Sdn Bhd . Besides, we can know the size and how to understand and do the work of making iron work, metal cutting, and so on. in this report has been told a little bit as much as the way to do it. do not forget, this report also tells about how a more detailed and well to do the work of making the working beam and the ground structure of the report also tells about the problems that arise on site and how fatherly finish.

The problems that always arise at the site and ground beam is focused on the material things that insecurity and also the material used should be used only a few times most discussions. Ready understand was the project site has been assessed above ground beam formwork manufacture has used 12mm plywood (7 ply) to create a ground beam formwork. The plywood has its own advantages and disadvantages. Plywood has found many flaws and need to change the type of material to be used as the formwork. Site studied was able to build the house belonging to two levels and has 2 types of homes, MR82 and MR83. Home design just different, but as many as 130 units of housing for MR82 and 128 units of housing for MR83. Habits sub-contractor will use 3 times for 3 units onwards should not be used anymore. This has made boarding will increase. Plywood will also be less exposed his deep resistance to heat and rain.

To solve this problem, suggestion was to use the steel formwork. The qualities of steel formwork are it should be water tight, it should be strong, it can be reusable, its contact surface should be uniform, and it should be according to size of member. This consists of panels fabricated out of thin steel plates stiffened along the edges by small steel angles. The panel units can be held together through the use of suitable clamps or bolts and nuts. The panels can be fabricated in large number in any desired modular shape 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. This is because the design of the house and also the amount available on this site and many are same. This can also

facilitate the sub-contractor to facilitate their work. The company will also be able to save the cost of disposal. Steel formwork for use with longer and hold. When so abyssal projects. Steel formwork can be sold back, because the market price of iron is high.