JABATAN BANGUNAN

UNIVERSITI TEKNOLOGI MARA

(PERAK)

TAJUK LATIHAN PRAKTIKAL

METHOD OF LOCK-UP CONSTRUCTION

Disediakan oleh:

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2010785795

JABATAN BANGUNAN

FAKULTI SENIBINA, PERANCANGAN DAN UKUR

UNIVERSITI TEKNOLOGI MARA

(PERAK)

APRIL 2013

Adalah disyorkan bahawa Laporan Latihan Praktikal ini yang disediakan

Oleh :

Ahmad Zaidi Mohamed Anuar

2010785795

Bertajuk:

Method of lock-up construction

Diterima sebagai memenuhi sebahagian dari syarat untuk memperolehi Diploma Bangunan.

Penyelia Laporan	Pn Wan Nordiana Bt Wan Ali
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APRIL 2013

PERAKUAN PELAJAR

Adalah dengan ini, hasil kerja penulisan Laporan Latihan Praktikal ini telah dihasilkan sepenuhnya oleh saya kecuali seperti yang dinyatakan melalui latihan praktikal yang telah saya lalui selama 5 bulan mulai 12 November 2012 hingga 12 April 2013 di Syarikat Pembinaan Marwan Sdn Bhd. Ianya juga sebagai salah satu syarat lulus kursus DBN307 dan diterima sebagai memenuhi sebahagian dari syarat untuk memperolehi Diploma Bangunan.

Nama Ahmad Zaidi Mohamed Anuar

No KP UiTM : 2010785795

Tarikh : 8 Mac 2013

PENGHARGAAN

Alhamdulillah, bersyukur ke hadrat Allah swt kerana dengan limpah kurnianNya Laporan Latihan Praktikal ini dapat disiapkan dengan sempurna. Seterusnya diucapkan setinggi-tinggi penghargaan dan terima kasih yang tidak terhingga kepada semua individu yang telah meluangkan masa member panduan, bimbingan kerjasama serta teguran yang membina kepada saya dalam menyiapkan laporan ini terutama sekali kepada Encik Wan Azhar Wan Mohamed selaku Pengarah Projek Syarikat Pembinaan Marwan Sdn Bhd, Encik Halid Halim selaku Pengurus Projek di tapak pembinaan, Encik Nor Azam Yahaya selaku coordinator Latihan Praktikal, Puan Wan Nordiana selaku penyelia pelajar dan tidak lupa juga kepada ibubapa saya, kerani di tapak pembinaan dan rakan-rakan sekuliah semoga Allah swt sahaja yang dapat membalas segala jasa dan pengorbanan mereka.

ABSTRACT

This report directly describes the processes and methods of construction in the police lock-up. It is produced based on the experience of five months stationed at the construction site. This report is divided into several parts, which started with the company background and the background of the construction project. As a result of study and observation found that the method of construction of the lock-up is not easy and it looks very different as compared to other construction methods. Then described more in detail about the methods involved and used in the construction of the lock-up which includes the construction of reinforcement bar on the floor, walls and roof floor and once blended concrete mix. During the construction stage, there are some problems and changes in the opening lock-up and the report ended with some suggestions and can solve the problem identified. In conclusion, this report will explain in more detail the process and practical lock-up construction method for the reader.

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CHAPTER 1

1.0 INTRODUCTION

1.1 Introduction

Practical training for six (6) months is compulsory for all students of the semester five (5) Diploma in Building UiTM for DBN 307 subjects. With the availability of practical training, students can gain a better understanding of the theories learned in lectures and practiced during the practical training. Besides, this is an initial overview of the student to the working conditions in the construction industry.

Pembinaan Marwan Sdn Bhd, a company in which the writer undergo practical training for 6 months that start on 12 November 2012 report his self in the main office and will end on April 12, 2013. After been briefed by the office clerk on the first day of practical training, the writer need to take a look and study the drawing about the project. On third day the writer need to follow the boss to attend site meeting that placed at Pangkor Island.

The address at site construction is Lot 5325, Mukim Lumut Daerah Manjung, Perak Darul Ridzuan to complete the work for Police Station uncompleted. Actually this is the second contractor to handle this project because the first contractor has terminated his contract by client and the client is government that is Kementerian Dalam Negeri (KDN). After one and a half week the writer has placed at construction site while the was waiting a room from previous project manager to move the other job.

Police Station is the central base in the area to maintain peace and tranquility global population. So, at the Pangkor Island there is only one mini police station and not enough to cover the homes of police officers and from the base and built a home for them as long as they are employed by the government.

1.2 Objective Of The Study

Everything they do must have its own objectives. Among the objectives identified by the writer to prepare this report are:

I. Identify machinery used during construction work to construct of lock-up

II. Problems that often occur during construction to construct lock-up

III. to find out the preliminary work completed construction of lock-up

1.3 Scope Of The Study

The scope of the study should also be identified to achieve the objectives listed. The scope takes into consideration are:

I. A more detailed focus given throughout the work be done on the lot 5325, Mukim Lumut Daerah Manjung.

II. Observation of all aspects involving weather, machinery and work carried out on the lot 5325, Mukim Lumut Daerah Manjung.

1.4 Method Of The Study

Generally, in order to prepare this report writer requires some method of study. There are:

I. Reference

Some of the contents of this report by reference books. Through general reference books geared towards theoritical and facts. With this method, the writer easily get information.

II. Print media

Reference through print media also important methods to complete this report. In addition, references to use print media is a more effective method. Some examples of this method are as magazines and newspapers. Through these materials can also learn something theoretically building measures.

III. Electronic media

Reference use of electronic media is a method faster and faster. Besides that the information obtained from electronic media and effectively. Some examples of these methods such as the internet.

IV. Observations

Observation is a method that most can get information and indirectly through observation may also provide more insight. With this method we can find out any information accurately.

V. Interview

By interviewing more knowledge in information. It is because, the authors have interviewed the workers to get information. In addition to interviewing the author also experts in construction in the company to learn more about the construction industry because they are more knowledge.

VI. Experience

Experience is very important for the writer in preparing for on-site for the duration of construction, the writer provide more coverage of the building construction.

In the month of December, 2012, just before the New Year, PMSB was selected to be in Teraju's TERAS programme which was launched by the Prime Minister's on 20 July 2011 under Prime Minister's Department and Majlis Tindakan Agenda Bumiputera (MTAD). The programme is intended to develop the next generation of world-class Bumiputera entrepreneurs across all 12 National Key Economic Areas (NKEAs) and targets high-potential Bumiputera companies to thrive in the next five to ten years. The goal is that the company is not only expanding beyond the local market but also to the global market and enable the company contribute significantly to "Keluaran Dalam Negara Kasar (KDNK)" by year 2020.

With a Managing Director who is Dynamic, highly motivated and performance oriented, PMSB has become what it is today, a bigger and influential entity in the construction industry. PMSB is backed by a team of professional and experience personnel, well trained and skilled workers, to meet the challenge of the construction industry. Hand in hand, the management and personnel work aggressively towards higher achievement, rapid growth of the company and pursuing excellence in everything that we do.

PMSB plans to actively participate in Government and Private projects throughout Malaysia as its contribution in promoting and developing Bumiputera participation in construction industry. PMSB aspires to be among the best and works towards the attainment and success of Vision 2020.

2.2 Company Profile

Photo 2.1: logo Pembinaan Marwan Sdn Bhd

BOARD OF DIRECTOR

1. WAN AZIZI BIN DATO' SERI HJ. WAN MOHAMED

   Master Of Business Administration (USA)
   B.Sc. Bus. Admin. Acct. (USA)
   Chairman / Managing Director

2. WAN AZHAR BIN DATO' SERI HJ. WAN MOHAMED

   Dip. In Executive Project Management (UMP)
   Cert. In Architectural Design (IKM)
   Director / Administration Manager

NAME OF COMPANY	:	PEMBINAAN MARWAN SDN. BERHAD
COUNTRY OF IN CORPORATION	:	Malaysia
DATE OF INCORPORATION	:	28th June, 1983
BUSINESS REGISTRATION NO.	:	8162/83 (Tempatan 103470-H)
CIDB REGISTRATION NO.	:	1960523-PK001422 Gred : G7
PKK REGISTRATION NO.	:	0803A860161 Class A' (Bumiputera Status)
TYPE OF ORGANIZATION.	:	Private Limited
BUSINESS AND REGISTERED ADDRESS (HEAD OFFICE)	:	No. 6 Jalan Canning Estate Canning Garden 31400 Ipoh Perak Darul Ridzuan
COMPANY SECRETARY	:	Rosli Gan & Associate Sdn. Bhd. Room 9, 2nd Floor, Chua Cheng Bok Building 94 Jalan Sultan Idris Shah 30000 Ipoh Perak Darul Ridzuan
AUTHORISED CAPITAL	:	RM 5,000,000.00
PAID-UP CAPITAL	:	RM 2,000,000.00
BANK	:	Malayan Banking Berhad (MBB) Ipoh Main Branch, Bangunan Maybank Trust, 28 Jalan Tun Sambathan, 30000 Ipoh, Perak Darul Ridzuan

2.4 Organisation Chart

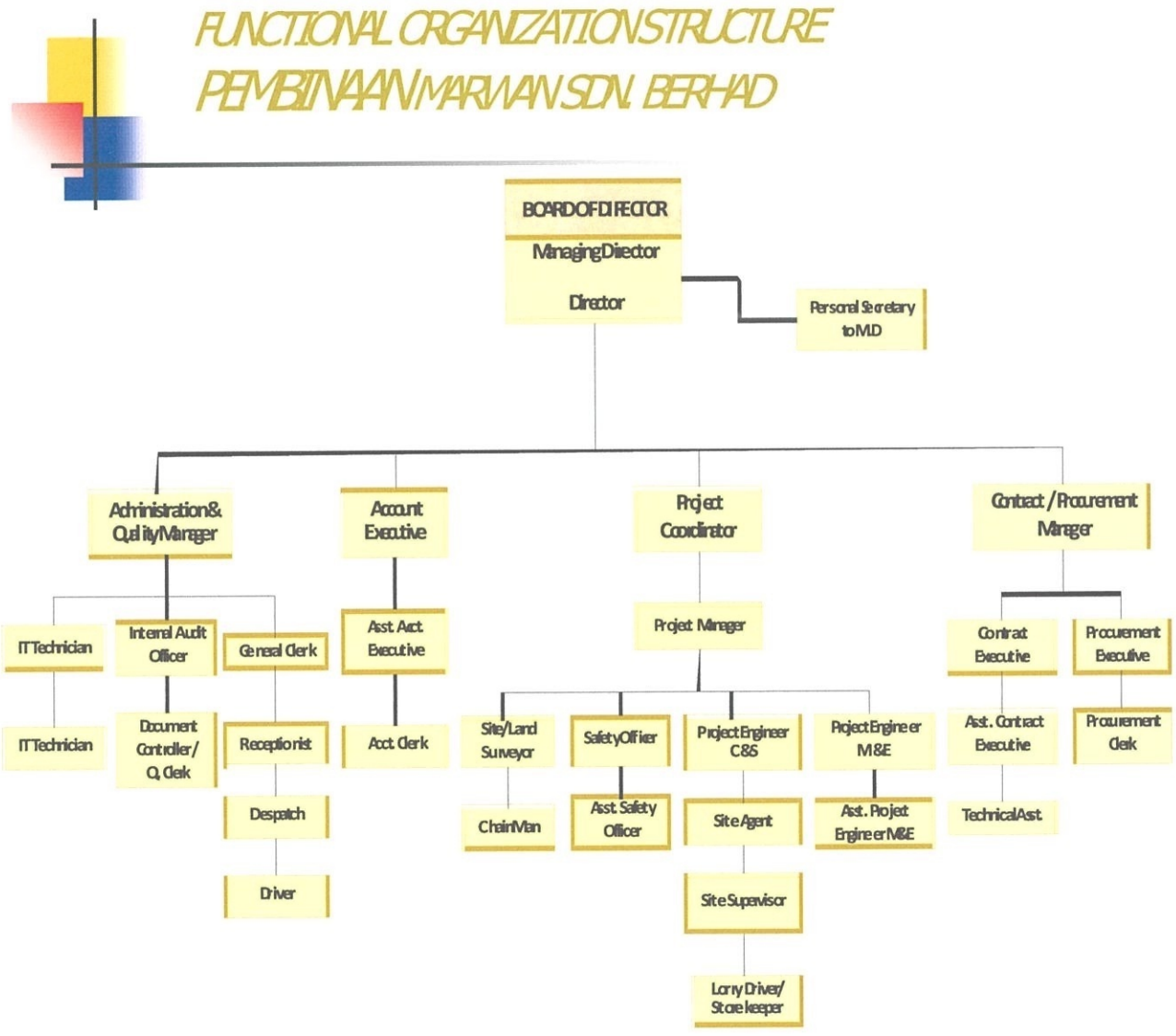

Photo 2.2 : Organization chart in Pembinaan Marwan Sdn. Bhd

1.4 List of Project

1.4.1 List Of Completed Project

No	Project
1	Project : Cadangan Pembangunan Projek Pendidikan Bagi Sekolah Menengah Kebangsaan Mata Ayer, Mukim Ngulang, (18BD) Perlis Indera Kayangan Client : Kementerian Pelajaran Malaysia Value : RM 21,417,585.50
2	Project : Projek Sistem Rawatan Air Pelbagai Sumber Di Perkampungan Orang Asli Negeri Perak Secara Reak Dan Bina Di Negeri Perak arul Ridzuan Bagi Pakej 1A Client : Kementerian Kemajuan Luar Bandar Dan Wilayah (KKLW) Value : RM 11,789,709.00
3	Project : Cadangan Pembangunan Sebuah Terminal Makanan Negara (TEMAN) Serta kemudahan yang berkaitan di Lot H/S (D), KA70076,PT3676 Mukim Sg. Raia Dan Teja, Daerah Kinta, Perak Darul Ridzuan Client : Lembaga Pemasaran Pertanian Persekutuan (FAMA) Value : RM 110,000,000.00
4	Project : Cadangan Membina Dan Menyiapkan Sebuah Sekolah Kebangsaan Pakatan Jaya, Di Bercham Jaya, Daerah Kinta, Ipoh Perak Client : Kementerian Pelajaran Malaysia Value : RM 10,439,436.80

No	Project
5	Project : Cadangan Pembangunan Skim Perumahan 101 Unit Rumah Teres Kos Sederhana 1 Tingkat Fasa 2A2-2 (ZAMRUD) Di Dalam Sebahagian Dari Rancangan Perkampungan Tersusun, Taman Desa Majuperak, Mukim Changkat Jong, Daerah Hilir Perak, Langkap, Perak Darul Ridzuan. Client : Syarikat Majuperak Berhad Value : 8,858,468.00
6	Project : The Design, Construction, Equipment And Commissioning Of Ambulatory Care Centre, Hospital Ipoh, Perak Darul Ridzuan Client : Jabatan Kerja Raya Value : 51,000,000.00

2.4.1 List Of Ongoing Project

No	Project
1	Project : Menyiapkan Kerja – Kerja Terbengkalai Bagi Balai Polis Pangkor Di Atas Lot 5325, Mukim Lumut, Daerah Manjung, Perak Darul Ridzuan. Client : Kementerian Dalam Negeri Malaysia (KDN) Value : RM 22,622,300.67

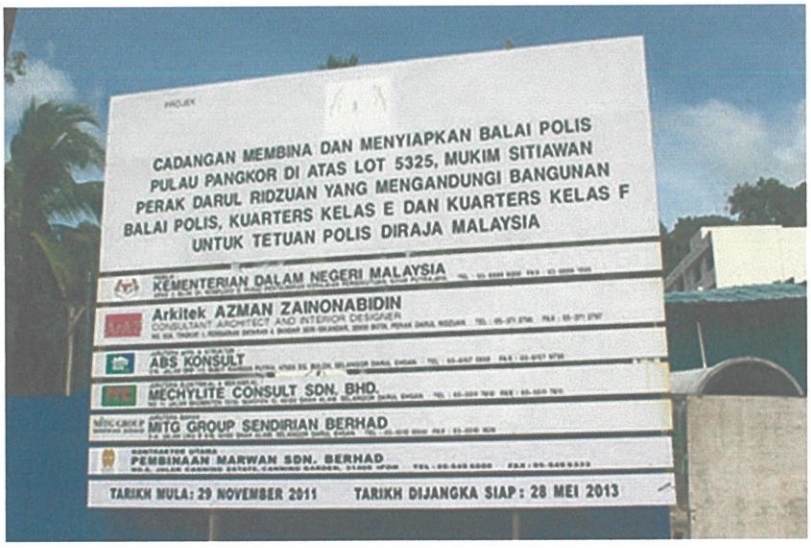

Photo 2.3 : Project signage

CHAPTER 3

3.0 METHOD OF LOCK UP CONSTRUCTION

3.1 Introduction

Project ' Menyiapkan Kerja-Kerja Terbengkalai Bagi Balai Polis Pangkor Di Atas Lot 5325, Mukim Lumut Daerah Manjung, Perak Darul Ridzuan' under Kementerian Dalam Negeri project. This site construction is near to the town of Pangkor Island and jetty Pangkor. After finish this project, so all of the police officers will feel more comfortable and easier for them to do their job.

Police Station is an administration building for peacekeeping locals. Thus, at the police station should also have lock-up for temporary shelter for civilians small misstep or stainless weights before in talking about guilt in court cases.

3.2 Project Background

The construction of the police station is the second contractor to manage it after the first contractor was terminated by the ministry for some reason. This project actually began nearly three years ago while under the authority of the first and after the contractor has left nearly six months before being taken over by the second contractor also known as rescue contractor.

This project consists of three building blocks, namely block police station or office building, quarters, class F as residential apartments and the police officers' quarters bungalow accommodation class E as police chief. in addition, this project also has a system of sewage treatment plant that will process all its own sewage system. Besides, this project was constructed behind the hill, then to hold the high ground then was constructed the cribwall and retaining wall along the high hill to hold the ground stronger to refrain from falling.

Photo 3.1: an example retaining wall to hold the high ground from falling

3.3 Case Study

Normally, the construction of the structural strength of the lock-up must have a structure that is strong and not easily broken, including in all the interior including floor, wall, door and roof slab. This is because if a lock structure is not strong or fragile or damaged, the offender will be easier to escape from lockup.

Thus, under construction lockup places great emphasis on safety. The material used should be in accordance with standards approved by the party responsible for that lock to be completed in good and not self-inflicted injuries to offenders arrested. Thus, from the initial stages to the end of his full attention should be given as to obtain a high quality lock.

Machinery also is the most important asset in the construction lockup. Without the machineries, lock-up will not be completed. Machinery used since the early stages yet to be fully completed construction by the availability of machinery, work flow to save time and obtain satisfactory quality.

3.3.1 Materials used in the construction of the lock-up

In the construction of the lock-up, a lot of materials to be used include:

1. Aggregate
2. Cement
3. Reinforcement bar
4. Formwork

3.3.1.1 Aggregate

Limestone and sandstone is a rock called the aggregate (HMSO: 1976). Aggregate to provide stability when there is friction on the displacement. To the surface and form a rough, aggregate can give high stability to lockup structure. High potential aggregate stability usually call as a hard aggregate, angular and rough surface. . In reference writer, aggregates are divided into two classes, namely the coarse and fine aggregate (Ir. Mansor Mohd Noor Azudin: 2003).both of these aggregates are very important to construct the lockup.

3.3.1.1.1 Coarse aggregate

Coarse aggregate typically classified as rock material or also known as granular material. Coarse aggregate size usually measuring 2.38mm. Coarse aggregate are most characteristic. Among them are:

Characteristic of aggregate	desciption
not easily destroyed	Coarse aggregate is not easily destroyed by any weather such as rain, hot, humid and others. Intolerant of aggregate break or be in tatters. However, with the tests that the aggregate immersed in a liquid sodium and magnesium salfat salfat and is heated.
rough and rugged	Aggregate effective role in the construction of roads. This was evident when the load capacity for heavy machinery like vibrator roller' during the compression process is done.

Photo 3.2 : Course aggregate

3.3.1.1. Fine Aggregate

Fine aggregate is a material that serves as the lid cavity spaces available during road construction. Moreover, we can also stabilize the fine aggregate concrete mix. It was evident when the particles are mutually closed without cavity spaces between each other.

Two types of fine aggregate was natural sand which is classed merakumi river sand, sand land, and sand mines. The second is that terayak crushed stone screening and also crushed quarry dust (Ir. Mansor Mohd Noor Azudin: 2003).

Photo 3.3 : fine aggregate

3.3.1.2 Cement

Portland cement is the most common type of cement in general use around the world because it is a basic ingredient of concrete, mortar, stucco and most non-specialty grout. It usually originates from limestone. It is a fine powder produced by grinding Portland cement clinker (more than 90%), a limited amount of calcium sulfate (which controls the set time) and up to 5% minor constituents as allowed by various standards such as the European Standard EN197-1:

(source: http://en.wikipedia.org/wiki/Portland_cement)

Photo 3.4 : Composite Portland cement used in concrete

3.3.1.3 Reinforcement Bar

A rebar (short for reinforcing bar), also known as reinforcing steel, reinforcement steel, rerod, a deformed bar, reo, or reo bar, is a common steel bar, and is commonly used as a tensioning device in reinforced concrete and reinforced masonry structures holding the concrete in compression. It is usually in the form of carbon steel bars or wires, and the surfaces may be deformed for a better bond with the concrete

(source: http://en.wikipedia.org/wiki/Rebar)

Rebar used in construction of the lock-up. rebar installed on each layer of concrete on the floor, walls and roof floor. An arrangement of rebar for the construction of the lock-up made in two layers to reinforce the structure of power in the building.

Photo 3.5 : installation of rebar at wall and floor of lockup.

3.3.1.4 Formwork

Formwork is the term given to either temporary or permanent molds into which concrete or similar materials are poured. In the context of concrete construction, the falsework supports the shuttering moulds.

(source: http://en.wikipedia.org/wiki/Formwork)

Formwork used for concrete for strength and give shape to the mold to be made. Formwork is one very important item during concreting work in progress. Even without formwork all construction work can not be done.

Photo 3.6 : Installation of formwork before concreting work is carry out.

3.3.2 Machinery used in the construction of the lock-up

no	photo	description
1		**Tower crane** Tower cranes were used to lift and transfer the concrete from the truck to place concrete process underway. Capacity tower cranes lifting heavy loads and concrete work will be carried out more quickly and easily.
2		**Batching Plant** Batching plant installed at the construction site. with the availability of this machinery concrete processing process will be faster than buying concrete from the plant that takes a long time and cost expensive.
3		**Ready mix lorry** Ready mix lorry used to transfer concrete from batching plant to the tower crane bucket and then put into place to be in concrete.
4		**Vibrator** vibrator used to provide uniformity and prevent concrete from the hollow on the inside.

3.3.3 Method Of Lock-up Construction

Police station construction project is a complex one because the site is built on the high ground where the uneven surface. before the building work carried out,, surveyors have been doing work for the first measure and the accuracy of measurements and the size and capacity building will be on later. The work measure is very important for the appropriate level and accurate.

Without the preliminary work, construction of buildings can not be built. When completed the preliminary work, then construction work done easier and faster.

The construction of police station is not be an easy job as it took over the abandoned project was made by the first contractor before. there are many mistakes that have been done by the first contractor as arranged poles uneven. However, the problem is planned in advance to overcome all the problems that exist at site.

3.3.4 Preliminary work

Site clearing is very important in any project. It is very important to remove substances that are not needed at the construction site. Clearing very aspect applies not wanting a delay time. all waste materials in the site such as trees, rocks etc thrown into the disposal site permitted by the authorities.

3.3.5 Piling works on the run

Piling works carried out at police station block. Piling work took almost two weeks and for carrying out this process in good weather. This process has been using peeling machine to give this process run more smoothly and systematically.

3.3.6 Method of lock-up construction on the run

Firstly, installation of rebar to lock wall was first done. rebar installation is installed by making two layers of rebar to provide strong lock wall structure and it is difficult for offenders to break through the wall of lockup. Then did the formwork installation process run along the outer wall and in the lockup. Upon completion, the work carried out on the concrete wall of the lockup. Lockup concrete works using concrete grade 30.

Photo 3.7 : concreting work process to wall of lockup done.

The surface of ground floor of lockup was spraying with anti termits first and is presented by using polythene plastic sheet. After the installation process performed on the floor rebar lockup. Rebar installation at floor lockup is also fitted with two layers of floor structure designed so that unbreakable lock altogether. At each lockup then has been installed water closet and sewerage pipe. Then, after all equipment installation concreting work process will go on.

Photo 3.8 : water closet installation to every room of lockup

Photo 3.9 : concreting work to ground floor lockup. This concreting work must be using vibrator machine

The construction of roof slab lockup is also using the same work. Has a little different about the roof slab lockup use scaffolding to withstand the load of concrete. After finish all of installation works including electrical wiring system conduit pipe concreting work will carry out at the roof slab of lockup. After concrete drying process completed at the top of roof slab lockup will put the water proofing material because water tank will be installed. The function of water proofing to avoid water leaks in concrete cracks.

Photo 3.10 : Reinforcement bar installation to the roof slab of lockup.

CHAPTER 4

CONCLUSION

100% exposure on construction site give meaning to the author in 1001 in the construction industry. During practical training conducted, the writer has gained a lot of information to complete the report and the key is to take the current experience of the working environment in the future. Without the practical training, the writer believe that this kind of experience will not be obtained in any of the included in the class. In building construction, the author recognizes that security are key aspects of the initial construction again. It is important to curb accidents involving both employees and the public. In addition, aspects of the weather also affects the construction of the building. It is because of good weather will produce a satisfactory road. Attitude employees work together and understand each other to be commended because it will have a positive impact throughout the construction been done.

The conclusion based on experience built 100% on-site writer is cooperation among highly skilled workers and are very important to building a high quality lockup and safe to use. Very important skill even better because of mechanization and uniqueness and artistic skills available to each employee will give satisfactory results when completed. It is hoped that the experience gained by the writer for 6 months will be used later during the working environment.

The writer know every steps to construct the lock-up. Meanwhile, how many materials that used to construct it and the machineries too. Then, the writer know and can handle to maximize the total cost to keep of the company.

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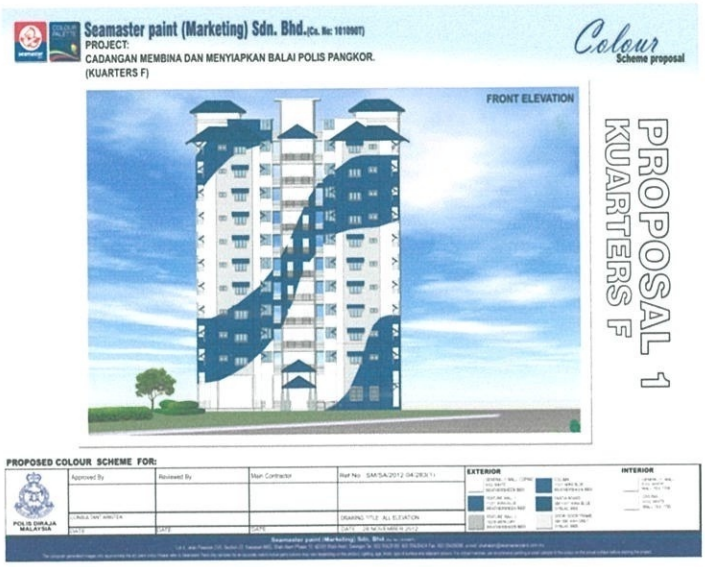
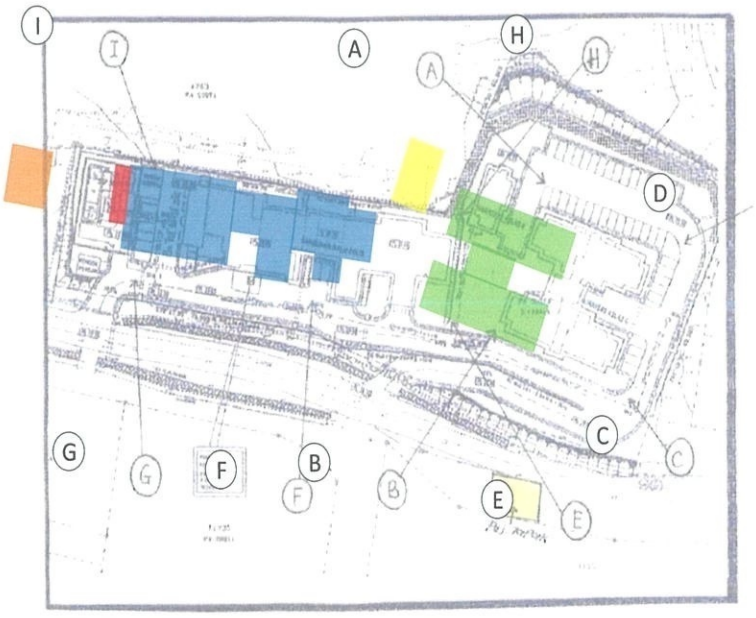
APPENDIX



Appendix A: Quarters Class F view.



Appendix B: site construction plan

Appendix C: Balai Polis project construction view will be finish on 28 May 2013