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

METHOD STATEMENT OF INSTALLATION PRECAST CONCRETE COLUMN AND BEAM AT MUKIM SERIAB, PERLIS

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(2015851828)
DIPLOMA IN BUILDING SURVEYING

PRACTICAL TRAINING REPORT
MARCH – JULY 2018

ACKNOWLEDGEMENT

Practical training report is a task that help me to enhance my knowledge about the construction project that I have involved during practical training and also helps me to feel the real experience in the field of employment.

Firstly, I would like to thanks to Allah S.W.T with His bless, I finally finish my practical training report on time during this semester. I would like to express highest gratitude to all those who have given the assistance and cooperation directly or indirectly in many forms whether it is in terms of physically or technically in the completion of this report.

I would like to express my greatest gratitude to En. Mohd Yusof Bin Shamsuddin as organinization supervisor in company Pens Holdings Sdn. Bhd. for giving me permission to undergo as practical training on their company and also provided guidance and advice despite authorize me to be directly involved in the activities of the under-company Pens Holdings Sdn. Bhd. Special thanks also to all employees at the company Pens Holdings Sdn. Bhd for accepting my presence with an open mind and also provide guidance during practical training.

Our thanks are especially dedicated to Sr. En. Amir Fasha Mohd Isa , Sr. En. Mohd Nurfaisal Baharuddin as supervisor and coordinator practical training for the lesson that they give in how to manage, done and settle up this report and also their help in giving beneficial input for the report.

Besides that, I would like to thanks also for all my classmate that give me information about this report and and helps me to finish this report successful. Lastly, special thanks to my parents and siblings who have given a lot of moral support and encouragement . Thank you.

May Allah bless all of you for your willingness to help me.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF CHARTS

LIST OF TABLES

ABSTRACT (SYNOPSIS OF REPORT)

This report is content all about the information about my case study through practical training under company Pens Holdings Sdn. Bhd during the four months of practical training. The topic that I have choose to complete my practical training is method statement of installation precast column and beam because the stage of construction project in undergoing is the superstructure work.

This report has a 5 chapter which included all information about the company, general information about case study, information about case study which is focus on specific topic that I have choose, and also problems and recommendation that have been analyzed during practical training. The first chapter in this report is detail of information of the company and the organization that owned by company that I choose to undergo the practical training. It also contain about the scope of work about this company, objective, mission and vision , location and suppliers that involved with the company Pens Holdings Sdn Bhd.

The second chapter give out information about the literature review based on my case study. All the general information and overview about the topic that I have choose is included in this chapter. It content about the definition, types and etc. The third chapter list out all the information about my case study that have get from my observation and learning with my real experience at the construction site that I have involved under company Pens Holdings Sdn Bhd. It content about the specific information that I get through practical training such as method of

construction, step by step what should do with orderly regarding my topic of case study.

Forth chapter is the problems and recommendation that I have analyze during the completion of the practical training report. It all about focusing and identifying the problem that occurs regarding my case study at site construction. Some of the problem might be minor and some of them could be major, sometimes the minor problem that occurs are not be taken any action. The last chapter in this report is the conclusion of the whole chapter which is the summary of every chapter in this report.

CHAPTER 1 :

DETAILS OF INFORMATION

1.1 INTRODUCTION

In this chapter, it is about all the general information about our selected company for practical training that have been choosen based on the requirement that have been stated. This information including the profile and general information about the company background.

The selected company is chosen based on the requirement that have given by lecturer and must be observed to all of the students. The company must have a scope of work related to student's course such as in construction, maintenance and about safety at the site project.

In this chapter , also explained the organization of company start from director until their staff. That can be some of information all about this company.

1.2 COMPANY BACKGROUND

Figure 1.1 : Company Logo

PENS Holdings Sdn. Bhd formerly known as Syarikat Peruda Sdn. Bhd. was incorporated on the 29th September , 1975. On the 7th October, 1985, the company changed its name to Pens Holdings Sdn. Bhd (PHSB). PHSB is a wholly owned subsidiary of Perbadanan Kemajuan Ekonomi Negeri Perlis (PKENPs). PHSB is a class "A" Bumiputera Contractor registered with Pusat Khidmat Kontraktor Malaysia (PKK) and CIDB in Grade 7 (G-7). The company has achieved the Quality Management Standard ISO 9001: 2008 recognition.

The company has an authorized capital of RM 25.0 million of which RM 13.75 million is paid up capital. The main activity of PHSB is Construction and Development. At present, our company also produced Lightweight Concrete Blocks (LWCB). The factory is located at Pens Lightweight System , Km 5, Jalan Bukit Ayer, Batu Pahat, Perlis. They cater for small and large scale production of blocks and panels namely Pens Block. Pens Block is made of Aerated Concrete , densities can be designed from 700 – 1600kg/m3. Our block size come in 500 x 200 x 100 mm in accordance to Malaysian Standard 2282 -3:2010 and has achieved SIRIM Recognition.

The company is fully equipped with a wide and comprehensive range of tools , plants, machinery and also with a highly experienced dynamic team of engineers and supervisors to ensure that each and every project that is undertaken by the company is always completed in a prompt, efficient and effective manner.

The company has successfully completed several projects since 1988 till today.

1.3 OBJECTIVE , VISION AND MISSION

OBJECTIVE

To achieve sustainable business growth with continual improvement in efficiency and effectiveness through :

- Manage projects effectively that are scheduled and engineered.
- Maintain high performance of construction.
- Ensure projects are within budget meets company quality standards and timely delivered.

VISION

- To expand its operation first to neighbouring markets, with the ultimate goal of building a global presence and reputation in the international market.

MISSION

- Develop the organization more successful with full commitment toward our core values and principle.

1.4 CORPORATE INFORMATION

Company Name	: PENS HOLDINGS SDN. BHD.
Date of Incorporation	: 29th September 1975
Company Registration No	: 24317-T
Registered Address	: No. 42-44, Simpang Tiga Persiaran Jubli Emas, 01000 Kangar, Perlis.
Telephone No.	: 04-9765915, 04-9765871
Fax No	: 04-9760818
E-mail	: pensholdings@gmail.com
Principal Activity	: Construction And Development
Authorized Capital	: RM 25,000,000.00
Paid-Up Capital	: RM 13,750,000.00
PKK &CIDB License	: Class 'A' Bumiputera & CIDB G-7
Shareholders	: PKENPs
Percentage	: 100 %
General Manager	: Hj Othman Bin Hj Omar
Company Secretary	: Sri Management Consultant

1.5 COMPANY ORGANIZATION CHART

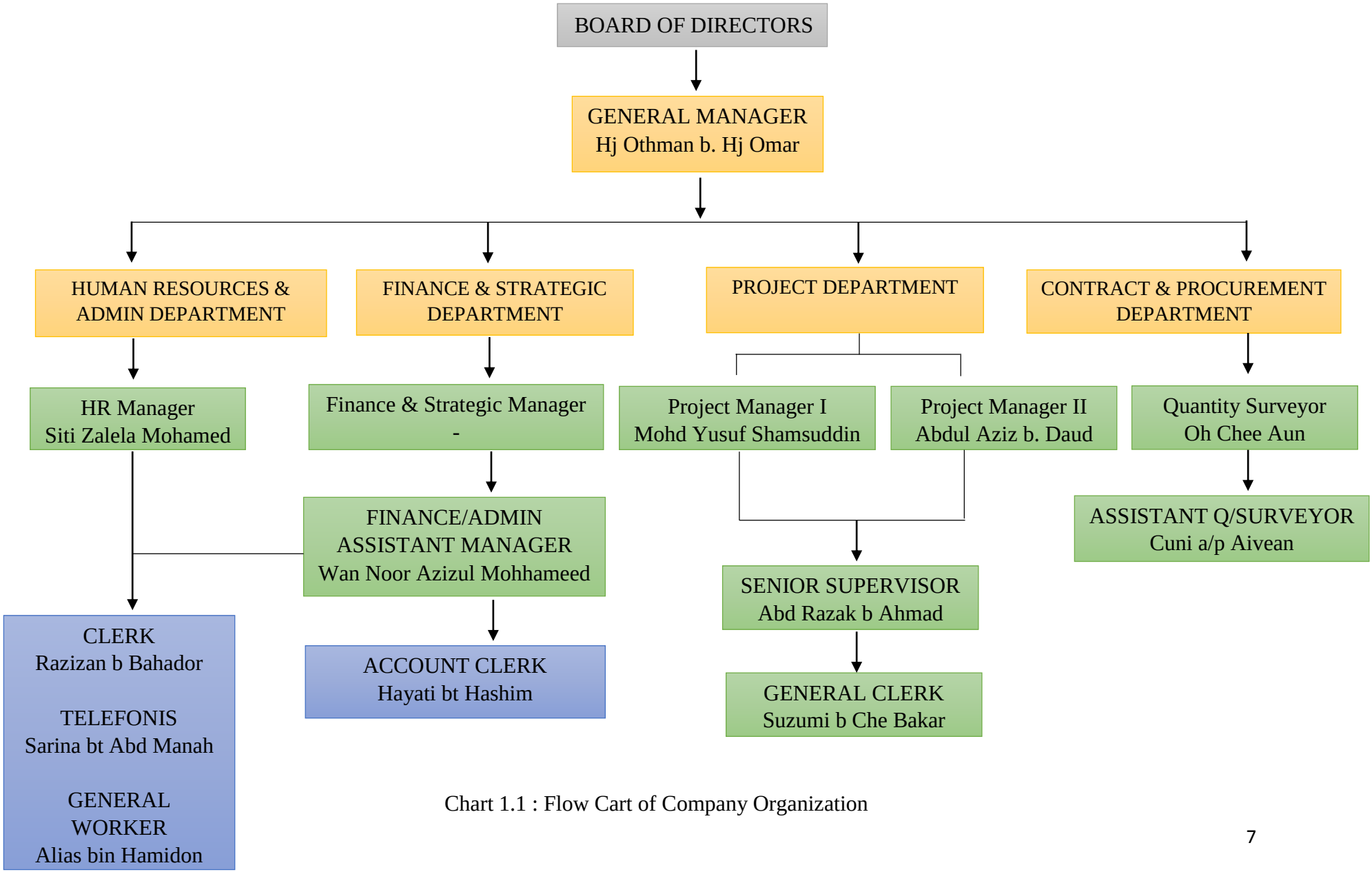


Chart 1.1 : Flow Cart of Company Organization

1.6 SCOPE OF WORK

Among services provided by PHSB is :

1) Build and improve buildings on two categories of land vacant lots.

a) Land vacant lots owned by PKENPs.

b) Land vacant lots owned by private individuals who want to sell.

c) Land vacant lots owned by private customers.

2) Modify the houses and buildings.

3) Services process split the lot of two categories of funding:

a) Landlord fund

b) Companies fund PHSB

In addition , PHSB also welcomes Individual or company wishing to cooperate, through the merger of capital for purchasing land together.

The main business activity of the company is active in the real estate field.

1) Development of residential and commercial building projects.

2) Acquisition of construction contracts government and private projects.

1.7 KEY PLAN, LOCATION PLAN AND SITE PLAN

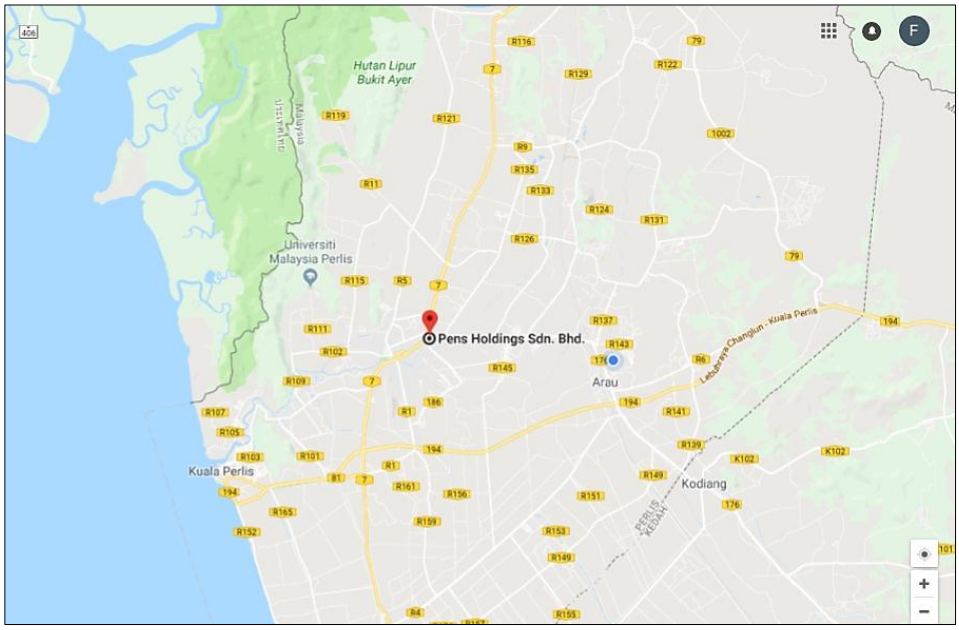


Figure 1.2 Key Plan Of Pens Holdings Sdn. Bhd. In Perlis

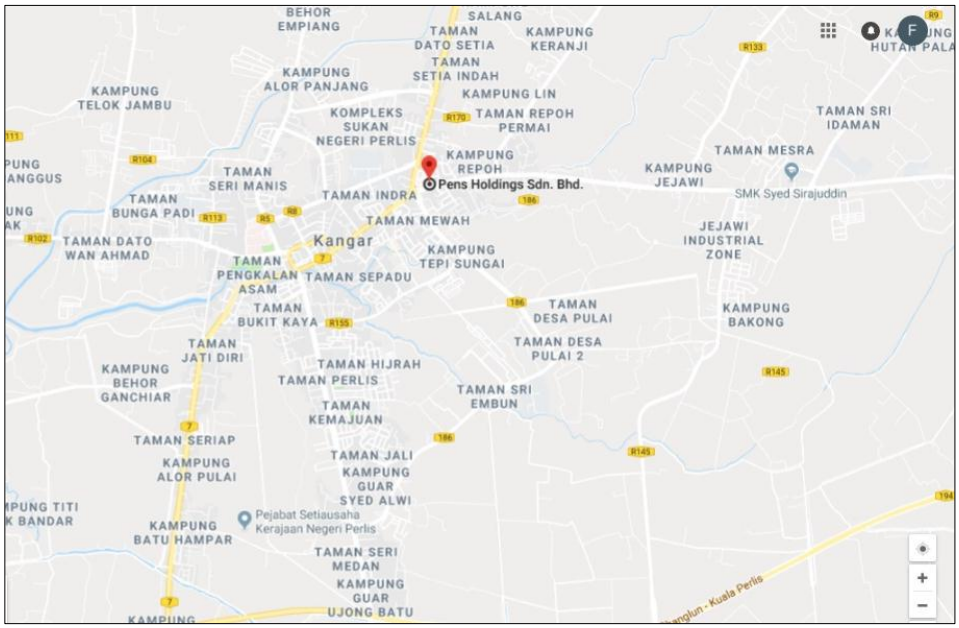


Figure 1.3 Location Plan Of Pens Holdings Sdn. Bhd In Perlis

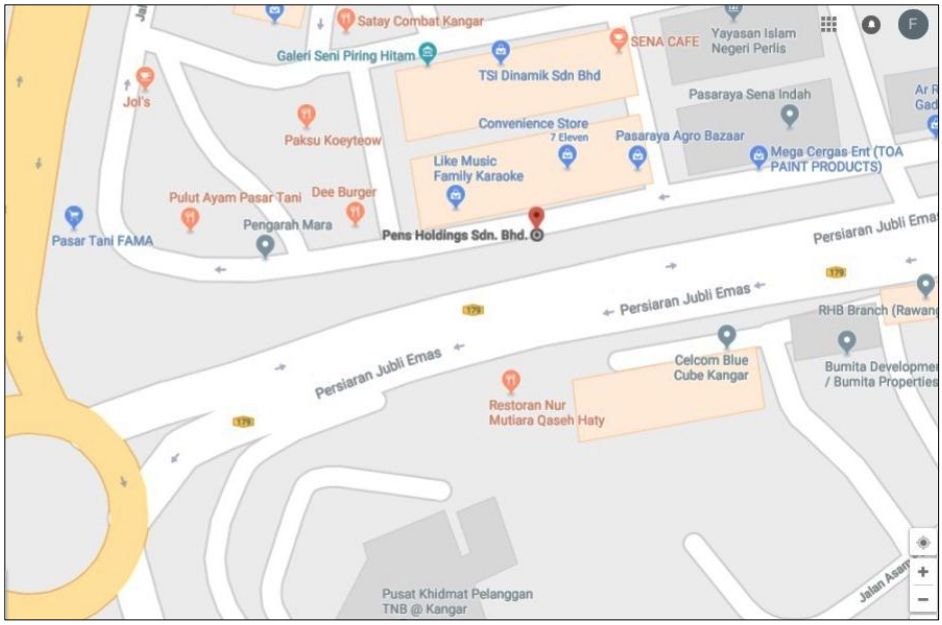


Figure 1.4 Site Plan Of Pens Holdings Sdn. Bhd In Perlis

Figure 1.5 Site Plan Of Pens Holdings Sdn. Bhd

1.8 LIST OF SUPPLIERS OF GOODS AND CONSTRUCTION MACHINERY

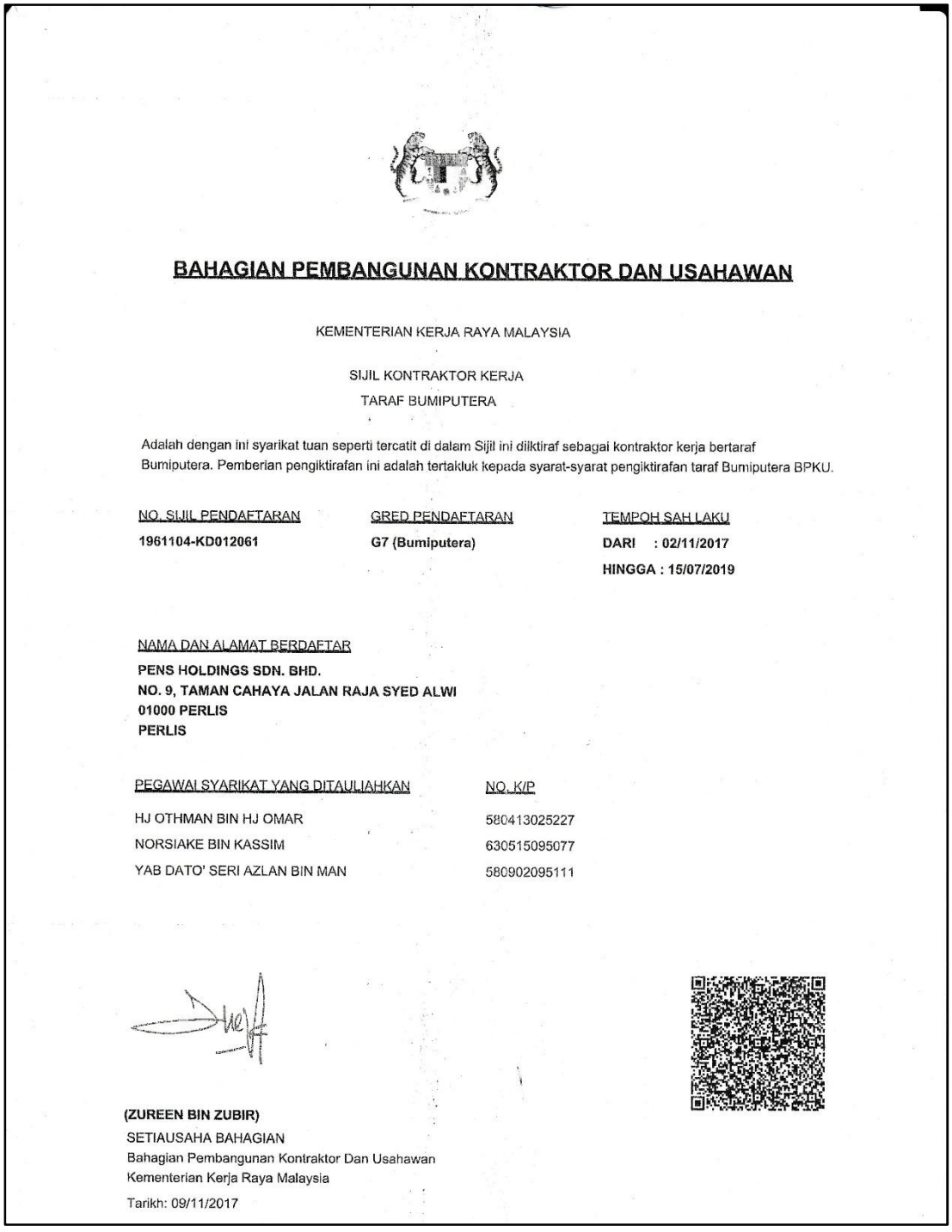
1. MAT BIN ARIFFIN
   Lorong Haji Daud, Batu 2 ½ , Jalan Santan,
   01000 Kangar, Perlis.
   Tel : 04-9381218

2. ST KUARI PERLIS ENTERPRISE
   No.31 , (Tingkat Atas), Taman Haz Melati,
   Jalan Bukit Keteri,
   02400 Beseri, Perlis.
   H/P : 019-4729071

3. SENG HENG PILING ENGINEERING
   No. 7, Tingkat Bawah, Taman Cahaya,
   Jalan Raja Syed Alwi,
   01000 Kangar, Perlis.
   Tel/ Fax : 04-9777911

4. MS TIGA ENTERPRISE
   Kampung Kubang Tiga,
   02500 Chuping, Perlis.
   H/P : 019-4282270

1.9 COMPANY REGISTRATION WITH AUTHORITIES



BAHAGIAN PEMBANGUNAN KONTRAKTOR DAN USAHAWAN

KEMENTERIAN KERJA RAYA MALAYSIA

SIJIL KONTRAKTOR KERJA
TARAF BUMIPUTERA

Adalah dengan ini syarikat tuan seperti tercatit di dalam Sijil ini diiktiraf sebagai kontraktor kerja bertaraf Bumiputera. Pemberian pengiktirafan ini adalah tertakluk kepada syarat-syarat pengiktirafan taraf Bumiputera BPKU.

NO. SIJIL PENDAFTARAN	GRED PENDAFTARAN	TEMPOH SAH LAKU
1961104-KD012061	**G7 (Bumiputera)**	**DARI : 02/11/2017** **HINGGA : 15/07/2019**

NAMA DAN ALAMAT BERDAFTAR

PENS HOLDINGS SDN. BHD.
NO. 9, TAMAN CAHAYA JALAN RAJA SYED ALWI
01000 PERLIS
PERLIS

PEGAWAI SYARIKAT YANG DITAULIAHKAN	NO. K/P
HJ OTHMAN BIN HJ OMAR	580413025227
NORSIAKE BIN KASSIM	630515095077
YAB DATO' SERI AZLAN BIN MAN	580902095111

(ZUREEN BIN ZUBIR)
SETIAUSAHA BAHAGIAN
Bahagian Pembangunan Kontraktor Dan Usahawan
Kementerian Kerja Raya Malaysia
Tarikh: 09/11/2017

Figure 1.6 : Certificate of Contractor License

210417 A

CIDB MALAYSIA

PERAKUAN PENDAFTARAN

Adalah dengan ini diperakui bahawa kontraktor yang dinyatakan di bawah ini telah berdaftar dengan Lembaga mengikut Bahagian VI Akta Lembaga Pembangunan Industri Pembinaan Malaysia 1994. Pendaftaran ini adalah tertakluk kepada syarat-syarat yang telah ditetapkan di belakang Perakuan ini

No Pendaftaran: **1961104-KD012061**

Nama Kontraktor : **PENS HOLDINGS SDN. BHD.**

Alamat Berdaftar : **NO. 9, TAMAN CAHAYA**
JALAN RAJA SYED ALWI
01000 KANGAR
PERLIS

Gred, kategori dan pengkhususan berdaftar

G7	B	B04
G7	CE	CE21 CE01 CE02 CE03 CE10 CE34 CE36
G7	ME	M15

Tarikh Mula Berkuatkuasa : **16 JUL 2017**

Tarikh Habis Tempoh Perakuan : **15 JUL 2019***

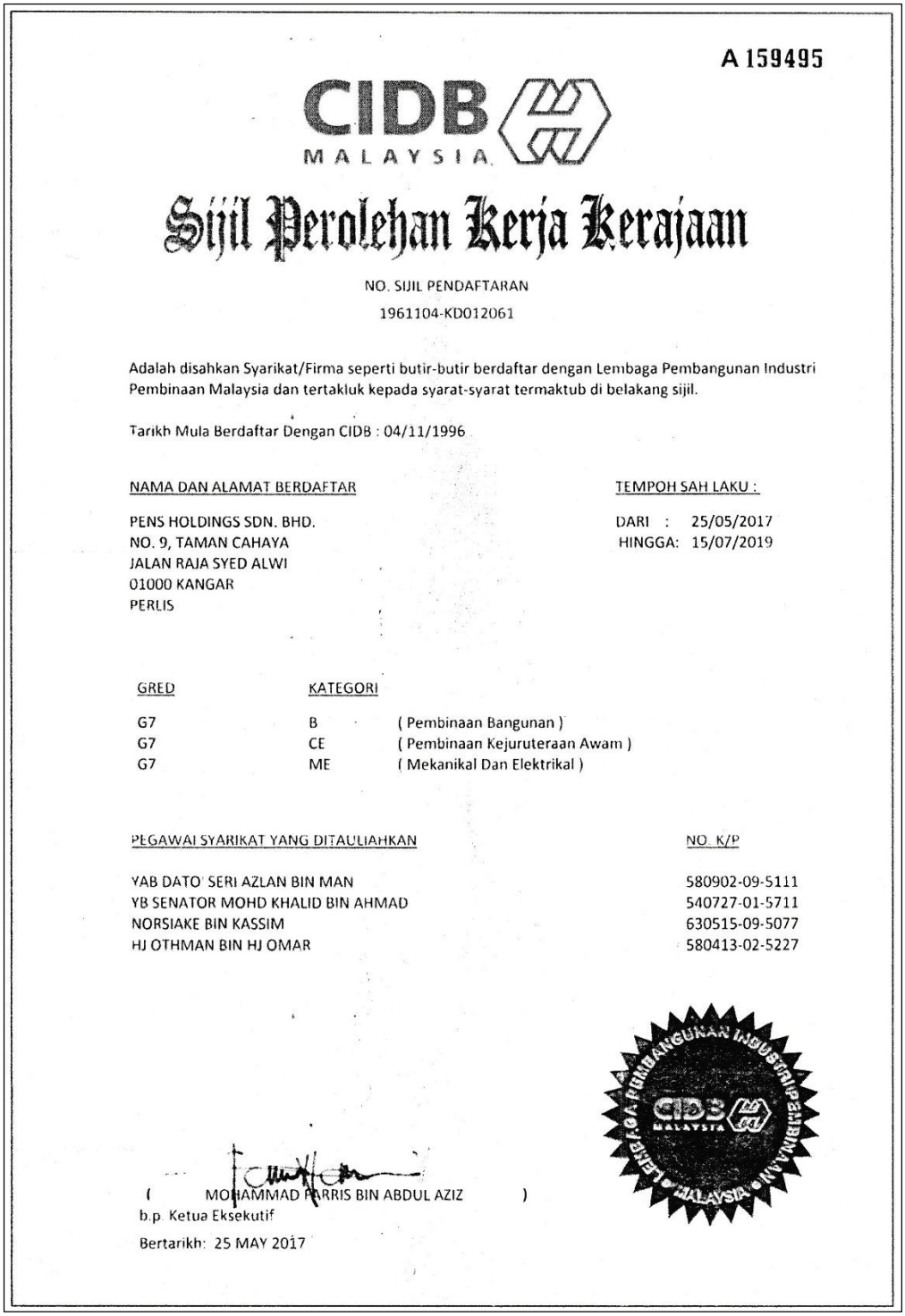
**Perakuan ini hendaklah diperbaharui selewat-lewatnya 60 hari sebelum tarikh habis tempoh.*

STATUS : AKTIF - Kontraktor yang diawardkan projek semasa perakuan pendaftaran ini dikeluarkan.

CIDB MALAYSIA

(**MOHAMMAD FARRIS BIN ABDUL AZIZ**)
b.p. Ketua Eksekutif
Bertarikh: **16 MAY 2017**

Figure 1.7 : CIDB Certificate of Registration Contractor



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CIDB MALAYSIA

Sijil Perolehan Kerja Kerajaan

NO. SIJIL PENDAFTARAN

1961104-KD012061

Adalah disahkan Syarikat/Firma seperti butir-butir berdaftar dengan Lembaga Pembangunan Industri Pembinaan Malaysia dan tertakluk kepada syarat-syarat termaktub di belakang sijil.

Tarikh Mula Berdaftar Dengan CIDB : 04/11/1996

NAMA DAN ALAMAT BERDAFTAR

PENS HOLDINGS SDN. BHD.
NO. 9, TAMAN CAHAYA
JALAN RAJA SYED ALWI
01000 KANGAR
PERLIS

TEMPOH SAH LAKU :

DARI : 25/05/2017
HINGGA: 15/07/2019

GRED	KATEGORI	
G7	B	(Pembinaan Bangunan)
G7	CE	(Pembinaan Kejuruteraan Awam)
G7	ME	(Mekanikal Dan Elektrikal)

PEGAWAI SYARIKAT YANG DITAULIAHKAN	NO. K/P
YAB DATO' SERI AZLAN BIN MAN	580902-09-5111
YB SENATOR MOHD KHALID BIN AHMAD	540727-01-5711
NORSIAKE BIN KASSIM	630515-09-5077
HJ OTHMAN BIN HJ OMAR	580413-02-5227

(MOHAMMAD FARRIS BIN ABDUL AZIZ)
b.p. Ketua Eksekutif
Bertarikh: 25 MAY 2017

LEMBAGA PEMBANGUNAN INDUSTRI PEMBINAAN MALAYSIA

Figure 1.8 : Certificate of Government Procurement

1.10 SUMMARY

In this chapter, I have learned about how to communicate with people in the company to get all the information about the company background, organization chart and scope of works that provide at the company. Apart from that, this chapter also provide company's location which is important for us to know the surrounding area of that place. It also content about the panel company that involved on PHSB, list of suppliers for PHSB and certificate registration of the company.

CHAPTER 2 :

LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter , explain about all the theoretical information about Industrialized Building System (IBS) that have been used in Malaysia. This chapter highlights the subject on IBS itself, types of IBS , its importance and contribute to the to the construction industry. It also elaborates the sequence of IBS construction according to the observation of conventional and precast constructions.

Apart from that, this chapter also explains about the methodology and method statement of installation of precast elements in general.

2.2 DEFINATION OF INDUSTRIALIZED BUILDING SYSTEM (IBS)

Industrialized Building System (IBS) is a alternative construction method in Malaysia which the Construction Industry Development Berhad (CIDB) defines IBS as a construction technique whereby building components are manufactured in factories or off site, transported and then assembled into a structure with limited on site work. In Singapore, the term IBS refers to a construction system for all types of structures , including infrastructure. Whatever the definition, the root idea of IBS is the same, which is manufacture of components for the construction of structures in a controlled environment.

The use of IBS in Malaysia started in 1963. However, although it has been four decades since the introduction of IBS in Malaysia, the application and adoption of this method in the local construction industry, particularly in the private sector, it still relatively low compared to the developed countries. This was despite the perennial problems besetting traditional construction methods which include time delay, cost overrun and waste generation.

The Malaysian government nonetheless sees IBS as the new way forward in the construction industry. The IBS Strategic Plan was launched in 1999 while the IBS Roadmap 2003-2010 was introduced in 2003. Furthermore, the government has mandated that government projects will carry 70% IBS Content.

The next wave is to convince the private sector to embrace IBS. The main goal of IBS Roadmap 2011-2015 is to promote private sector to achieve a usage of 50% IBS content. The construction sector was known as a traditional sector that can be characterized as reluctant and even resistant to change.

Nonetheless, there are several main barriers in the implementation of IBS in private sector, such as (i) payment method on IBS components, (ii) lack of knowledge, (iii) high investment cost, (iv) concerns on achieving breakeven point, (v) weak level of integration, (vi) design process which is still based on conventional practice, (vii) shortages of skilled worker, and (viii) lack of design standardization. However, we reckon all these barriers not insurmountable. Hence the prospects of IBS construction method in Malaysia are enormous.

Moreover, its positive implications on the economy cannot be underestimated. For example, likely savings from government projects as a result of IBS implementation would help to reduce government's development expenditures. IBS can also help to reduce our reliance on mostly foreign unskilled labour and will also improve the industry's image as well as create awareness among local workforce on the benefits of joining the industry. Additionally, in the long-run , the IBS expertise gained will become a trading platform to strengthen the country's comparative advantages and reinforces its economic stature in promoting exports of high value-added products and services.

(Sources : MIDF Research,2014)

2.3 CHARACTERISTICS OF IBS

According to the CIDB, systems to be accepted as part of IBS need to possess six characteristics below :-

- Industrial production of components though pre-fabrication
- Highly mechanized in-situ processes i.e. slip forms, post-tensioning, tunnel shutters
- Reduces labour during prefabrication of components and site works
- Modern design and manufacturing methods i.e. involvement of Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM)
- Open Building Concept i.e. permitting hybrid applications, adaptable to standardization and Modular Coordination (MC)

(Sources : CIDB, 2005)

2.4 TYPES OF IBS SYSTEM

The Malaysian construction industry is undergoing a transitional change from an industry employing conventional technology to one which more systematic and mechanized. Based on classification by CIDB, there are six main IBS groups identified as being popularly used in Malaysia, and these are :-

1. **Pre-cast concrete framing, panel and box systems**

   This system includes precast concrete columns, beams, slabs , walls , "3-D" components (eg: balconies, staircases, toilets, lift chambers, refuse chambers), lightweight precast concrete, as well as permanent concrete formworks.

Figure 2.1 : Precast Concrete Wall

2. **Steel formwork system**

   This system includes tunnel forms, tilt-up systems, beams and columns moulding forms, and permanent steel formworks.

Figure 2.2 : Steel Formwork System

3. **Steel framing system**

This system commonly used with precast concrete slabs, steel columns/beams and steel framing systems, and is used extensively in the fast-track construction of skyscrapers. Apart from that, it is extensively used for light steel trusses consisting of cost-effective profiled cold-formed channels and steel portal frame systems as alternatives to the heavier traditional hot-rolled sections.

Figure 2.3 : Steel Framing System

4. **Timber framing system**

This system consists of timber building frames and timber roof trusses. Although the latter is more common, timber building frame systems also offer interesting designs from simple dwelling units to buildings such as chalets for resorts.

5. Blockwork system

This system includes interlocking concrete masonry units (CMU) and lightweight concrete blocks. The block system is mainly used for non-structural wall as an alternative to conventional brick and plaster.

Figure 2.4 : Blockwork System

6. Innovative system

This is the latest IBS type which incorporate various “green” elements, which are considered innovative in the industry. An example of the innovation is the mixture of two elements such as polystyrene and concrete, to produce IBS components for use in the construction of a wall which has better heat insulation properties. Indeed , with the advancement in technology and innovation, new materials are being introduced at the fabrication stage. Some of the new materials introduced in IBS include gypsum, wood wool, polymer, fiberglass and aluminium –based IBS components.

(Souces : MIDF Researh,2014)

2.5 TYPE OF PRECAST CONCRETE

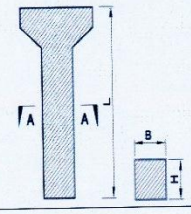
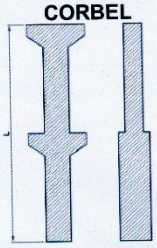
1	**SINGLE TIE COLUMN WITH CORBEL** 	**Width (B):** 300 ~ 900 at 50mm increment **Depth (H):** 300 ~ 900 at 50mm increment **Height (L):** 3.0m ~ 14.0m at 50mm increment
2	**DOUBLE TIE COLUMN WITH CORBEL** 	**Width (B):** 300 ~ 900 at 50mm increment **Depth (H):** 300 ~ 900 at 50mm increment **Height (L):** 6.0m ~ 14.0m at 50mm increment
3	**DOUBLE TIER COLUMN WITH CONCEALED CONNECTOR** 	**Width (B):** 300 ~ 900 at 50mm increment **Depth (H):** 300 ~ 900 at 50mm increment **Height (L):** 6.0m ~ 14.0m at 50mm increment

Figure 2.5 Type of Precast Column

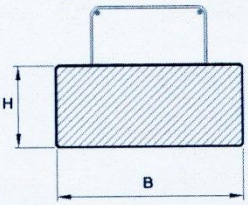
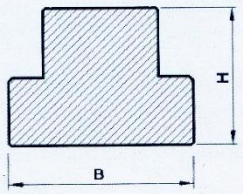
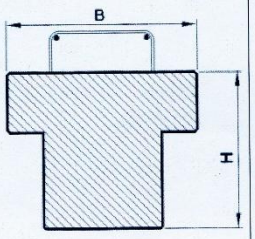
1	**RECTANGULAR BEAM** 	**Width (B):** 200 ~ 1200 at 50mm increment **Depth (H):** 300 ~ 1000 at 50mm increment
2	**INVERTED TEE BEAM** 	**Width (B):** 600 ~ 1200 at 50mm increment **Depth (H):** 300 ~ 1000 at 50mm increment
3	**UPRIGHT TEE BEAM** 	**Width (B):** 600 ~ 1200 at 50mm increment **Depth (H):** 300 ~ 1000 at 50mm increment

Figure 2.6 : Type of Precast Beam

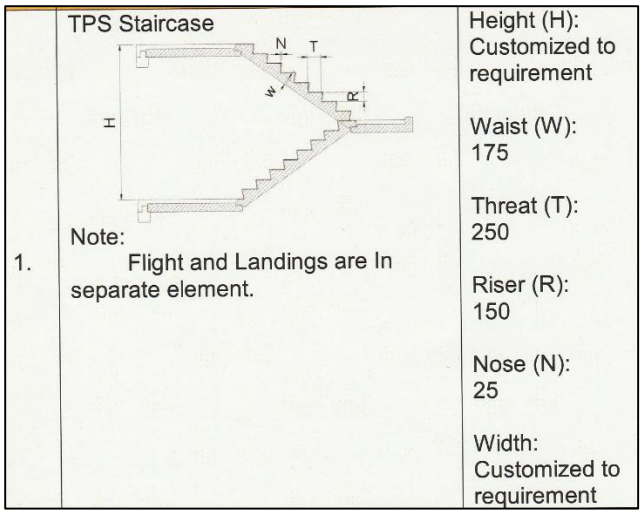


Figure 2.7 :Precast Staircase

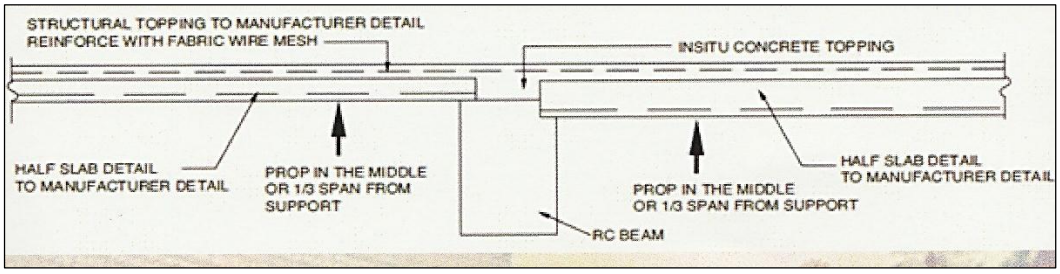


Figure 2.8 : Cross Section Precast Half Slab

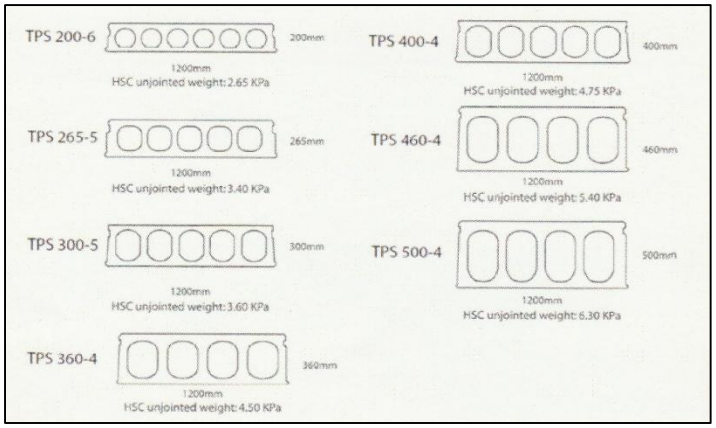


Figure 2.9 : Precast Hollow Slab

(Sources : TP Construction)

2.6 BENEFITS OF IBS COMPONENT

Most of the industry players fail to realize that IBS offers better alternative to the traditional and labour intensive in-situ construction. The main benefits offered by the usage of IBS elements are :

2.6.1 High Quality and Aesthetical Value of Products

IBS products are manufactured in a casting area where critical factors including temperature, mix design and stripping time can be closely checked and controlled; and this will ensure that the quality of IBS products are better than cast in-situ concrete. A huge sum of money will be saved by not having to do rectification works. Also due to factory-controlled prefabrication environment, many combinations of colours and textures can be applied easily to the architectural or structural pieces. A vast range of sizes and shapes of IBS components can be produced, providing a great deal of flexibility and offer fresher looks to the structures.

2.6.2 Cleaner and Safer Construction Site

Usage of IBS elements eliminates or greatly reduces conventional formworks and props. IBS construction also lessens the problem of site wastages and the related environmental problems. The prefabricated products also provide a safe working platform for workers to work on. Workers and materials are also greatly reduced at the construction sites. Also, as elements are produced in the plant and mostly

designed to be repetitive, minimal wastage will be experienced at both factory and construction sites.

2.6.3 Faster Construction

IBS Construction will save valuable time and helps to reduce the risk of project delay and possible monetary losses. IBS design and production of elements can be started while the construction site is under survey or earthworks. Production are also unaffected by weather conditions due to preliminary work such as the controlled environment on casting area. Also, the usage of large IBS panels will reduce the time taken to complete the structural works. Therefore, other trades such as painting and electrical wiring can begin work sooner.

2.6.4 Greater Unobstructed Span

The usage of prestressed precast solutions such as Hollow Core slabs and Double-T beams offer greater unobstructed span than the conventional reinforced concrete elements. With having the lesses beams and columns in any structure, it will provide flexible working space. It is very ideal for the construction of places of worship, warehouses, halls, carparks, shops and offices.

2.6.5 Lower Total Construction Costs of Ownership

All of the above simplify the construction processes and increase productivity, quality and safety. As a result, the total costs of construction are reduced.

(Sources : Simulation Of Industrialised Building System Formation For Housing Construction ,2007)

2.7 CHALLENGES TO THE ADOPTION OF IBS

- **Construction sector is known to be a traditional sector that can be characterized as reluctant and resistant to change.** However, there has been a shift in paradigm regarding IBS in Malaysia for the past few years. In the past, the majority of contractors were still divided between using the IBS or the conventional method, in spite of the clear and eminent benefits of IBS. The following are the main challenges encountered during the implementation of IBS in the private sector.
- **Application of payments.** Unlike conventional systems, typically, IBS manufacturers will impose an initial payment or deposit to contractors for the purchase and delivery of IBS components. Subsequent delivery of IBS components would also require immediate payments (unless the contractor has a close work relationship with the IBS producers and can negotiate for other payment terms). This may create cash flow problems to contractors as the project owner practices payment methods based on conventional construction works whereby the structure of a building is completed at the construction site.
- **Lack Of Knowledge.** The bureaucratic system that is practiced by some government departments and local authorities (PBT) is complicated either on stage or in the planning stages of approval. Some authorities still lack knowledge on the design process of IBS which has resulted in misunderstanding or misinterpretation of the IBS construction.

- **High Investment Cost.** Implementation of IBS costs is about 12-13% higher compared with to conventional methods. This is due to the high prices of IBS components that can be broken down to purchase of new machinery, mold manufacturing, tax and machinery imported from abroad as well as cost of training workers for the installation of the components and operation of various high tech machines. The high investment cost is also due to a mismatch in supply and demand for IBS components as there is a limited number of IBS suppliers in the industry against the backdrop of a rising demand for IBS components.
- **Break Even On Point.** Although it creates more value to construction, industrialization is literally a more expensive option due to high capital outlay and maintenance of machineries. On top of that, inconsistency in business volume and lack of business continuity over time may also result in the investment of the latest innovation not being commercially sustainable.

- **The Weak Level of Integration.** Poor communication and poor coordination among project team members may also contribute to the problem. Failure to understand the real needs of clients, as well as providing incomplete painting of the IBS structure design have magnified the situation, and thereby contributing to "constructability" isssues during the installation process on site. For example, some panels cannot be installed at the properly as the designated space was initially reserved for doors, windows, lintels, etc. as such details were clearly mentioned in the original design plan.
- **Design Processes Based On Conventional Practice.** Most IBS projects were initially designed using conventional methods, but later changed to the design of IBS. This usually happens when the contractor (who awarded the project) discovers the manufacturer of IBS components. This will lead to wastage of time and cost as such renovation works typically involves about 90% modification of the original design plan. Hence, most consultants are not willing to redesign and convert all conventional painting to IBS painting, unless the client is willing to increase consultation fees for the additional work.

- **Shortage of Skilled Workers and Limited Training.** Average programs offered for IBS design process at institute level especially diploma and degree rank is currently still not recognized. Most programs still practicing their conventional forms and guidance and not emphasize on such as pre-training to the IBS components.
- **Lack of Standardization in Designs.** So far, there has not been any standardization codes in IBS project design works done by consultants. Although the Modular Coordinator (MS 1064) was introduced in the IBS Roadmap 2003-2010 and 2011-2015, this code has garnered minimal participation from industry players. Furthermore, most IBS manufacturers have their own respective system which differs from one another in terms of size, type and installation method. This causes problems to arise due to the inconsistency in design which complicates the installation by the contractor at the construction site.

(Sources : MIDF Researh,2014)

2.8 METHOD STATEMENT INSTALLATION OF PRECAST CONCRETE

2.8.1 Preparatory Works Items and Checklist

- Check for site accessibility for the delivery of precast elements.
- Check delivery checklist for correct type, quantity and panel identification

Figure 2.10 : Delivery Of Precast Component

- Check for adequate crane capacity and working clearance for hoisting of precast concrete elements.
- Conduct sample measurement to confirm on the accuracy of the critical dimensions of precast concrete elements and openings.

Figure 2.11 : Measurement Check For Precast Component

- Conduct visual inspection on concrete finishes and check for any major defects.

Figure 2.12 : Inspection On Concrete

- Check the locations and conditions of lifting inserts before hoisting.

Figure 2.13 : Precast Storage Area

- Check on the accessibility of unloading point and storage area.
- Check that the storage area is of hard, level, clean and well drained ground.
- Store the precast elements where required using “First In First Out” principle according to the delivery schedule and erection sequence.

2.8.2 Installation Of Vertical Precast Component

2.8.2.1 Setting Out

- Set reference line and offset line to determine the position of the precast elements to be installed.
- Check the accuracy of the offset lines.

Figure 2.14 : Alignment Checking

- Provide level pads (or shim plates) for setting the level of the elements. Set the level pads in position using non-shrink mortar.
- Check the shim plate level and stability.

Figure 2.15 : Shim Plate

- For precast, external wall / column, fix the compressible form or backer rod on the outer perimeters of wall.
- For vertical precast component, check the positions and alignment of the starter bars before hoisting for installation.

Figure 2.16 : Position And Alignment Checking

- Check that the compressible form or backer rod are properly secured.

Figure 2.17 : Backer Rod Checking

2.8.2.2 Lifting and Installation

- Lift and rig the panel to its designated location with the use of wire ropes.

Figure 2.18 : Precast Component Lifting

- Adjust the panel to position and secure it with diagonal props.
- Check the stability of the erected props before releasing the hoisting cable.

Figure 2.19 : Hoisting Checking

- Check the hoisting condition of the precast element.
- Check alignment and verticality of the panel. If necessary, adjust the temporary propping to achieve the level and position of the precast element.

2.8.2.3 Grouting Work

- Prepare and apply non-shrink mortar to seal the gaps along the bottom edge of the inner side of the panel.

Figure 2.20 : Grouting Process

- For corrugated pipe sleeve or splice sleeve connection, prepare and pour non-shrink grout or proprietary grout into the pipe inlets provided.

Figure 2.21 : Grouting Process

- Keep the installed panels undisturbed for at least 24 hours.

2.8.2.4 Joint Casting and Sealing

- For panels with cast in-situ joints, install the joint rebars as required.

Figure 2.22 : Jointing component process

- Set up forms for the casting of the vertical joint.
- Carry out concrete casting.
- Remove forms after sufficient concrete strength has been achieved.
- For joints between façade walls or between external columns with beams or walls elements, approved sealant and grout will be installed at later stage.
- For panel with welded connection, place the connecting plate between the panels and carry out welding as per design requirement.

2.8.3 Installation Of Horizontal Precast Component

2.8.3.1 Setting Out

- Set reference line and offset line to determine the required alignment and level of the precast slab/ beam elements during installation.

Figure 2.23 : Setting Out Process

- Check the accuracy of the offset lines.
- Check the level and stability of the shim plates.
- Before hoisting, check that the dimensions and alignment of the protruding bars are within the specified tolerance, to prevent any obstruction during the erection process.

Figure 2.24 : Protruding Bars

2.8.3.2 Lifting and Installation

- Put up temporary props to support the precast slab/beam elements.

Figure 2.25 : Installation Process

- Lift and rig the elements to designated location with the use of wire ropes.

Figure 2.26 : Installation Process

- Align and check level to suit the required setting out before placement of precast members to final position.

Figure 2.27 : Installation Process

2.8.3.3 Casting Of Joints

- For components with cast in-situ joints, place and lap the rebars as required.

Figure 2.28 : Jointing Process

- Set up the formwork for the casting of the joint.

Figure 2.29 : Concreting Process

- Carry out concrete casting.
- Remove forms after sufficient concrete strength has been achieved.

(Sources : BCA,2006)

2.9 SUMMARY

In this chapter, I have learned all about the literature review that related with my case study. All information that related with my topic that I have choose included in this chapter .All collection of information that I get can help me to know the definition of IBS System in Malaysia, benefits of IBS System , Characteristics of IBS, types of IBS System and Type of Precast Concrete and the difference of the method of construction in installation of IBS components.

CHAPTER 3 :

CASE STUDY : METHOD STATEMENT OF INSTALLATION

PRECAST CONCRETE COLUMN AND BEAM

3.1 INTRODUCTION

In this chapter, it is content all about my case study that I have been choose to completed my practical training report. This case study is based on actual experience through practical training that I went through during practical training under construction company. The topic that I choose is " Method Statement of Installation Precast Column and Beam" . This project used IBS system which is precast concrete system to reduce time of construction. As for this case study, I will focus more on Installation Precast Column and Beam for Banquet Hall.

In this chapter content about background of case study, introduction of precast column and beam, design and types of precast column and beam which used, method statement for production and QA/QC procedures for precast elements, installation works of precast concrete column and beam until complete and relevant information included a picture to complete the report.

3.2 BACKGROUND OF CASE STUDY

3.2.1 Project Background

Figure 3.1 : 3D Project Layout

This project "Projek Pembinaan Kompleks Pentadbiran Kerajaan Negeri (Bangunan SUK Baru) Mukim Seriab, Perlis " is a project under ownership of the state secretary of the Perlis State which is have connection to the old building of SUK Perlis. This project is located at Mukim Seriab, Perlis which is adjacent to the old building of "Bangunan DUN Perlis". The area of this project is 69,176.6 m2 which is 17.09 acre.

This project have three administration block which is Blok A, Blok B and Facility Block and also have Banquet Hall which can fit capacity 600 persons. This project also provide support building such as Mechanical Block, TNB Block, Waste Disposal House, Guard House and Parking Lot. The main contractor that in charge for this project is Pens Holdings Sdn. Bhd.

This project used precast concrete column and beam for their main building which is Administration Block and Banquet Hall. All of component precast column and beam are from supplier sub-contractor , Teraju Precast Services Sdn. Bhd. which is located at Banting, Selangor Darul Ehsan.

Teraju Precast Services Sdn. Bhd. was established to undertake design, I.B.S Consultations and I.B.S supplier and install of precast concrete building components. Board members of the Company possess the required experience in the execution of any construction works to be carried out in the form of IBS. Each members is specialized in the respective scope of works involved in precast system construction.

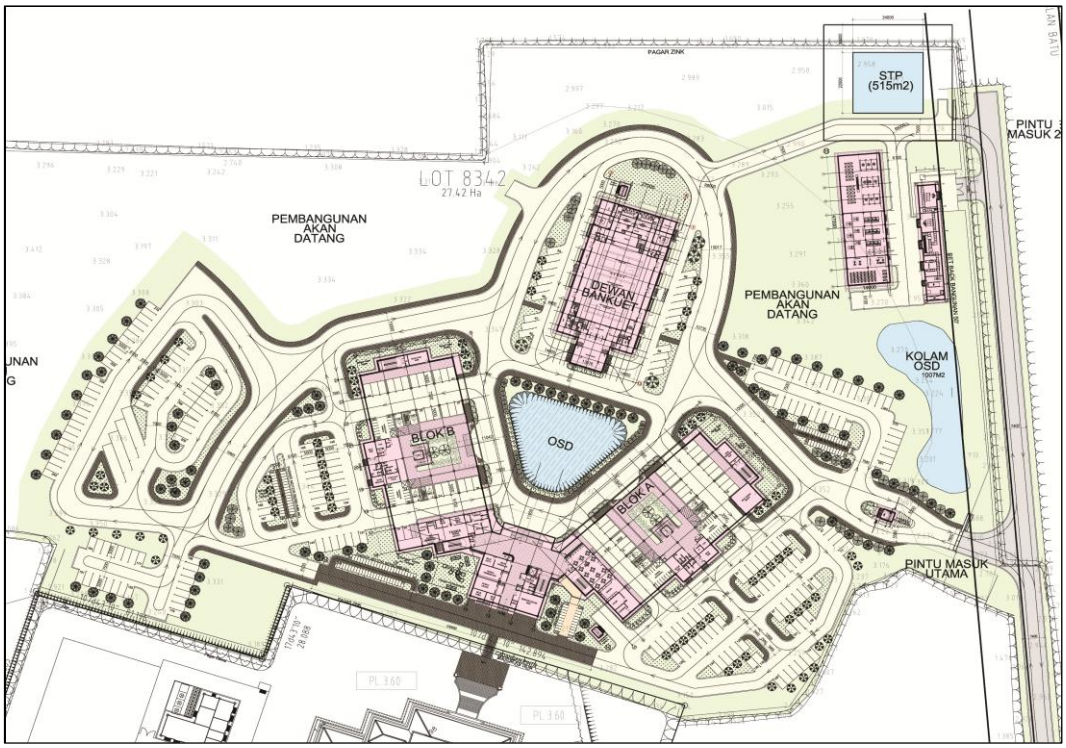


Figure 3.2 : Site Layout Plan of SUK Project

3.2.2 Project Information

CONTRACT INFORMATION	
Contract No.	JKR/IP/CKUB/44/2017
Contract Amount	RM 87,980,000.00
Date of Site Ownership	27 April 2017
Origin Ready Date	24 April 2019
Date of Acceptance Tender Letter	10 April 2017
Defect Liability Period	12 Months
Insurance Company	Etiqa Takaful
SURVEILLANCE INFORMATION	
Owner	Setiausaha Kerajaan Negeri Perlis
Enforcement Officer	Jabatan Kerja Raya Perlis
Main Contractor	Pens Holdings Sdn. Bhd

Table 3.1 : Project Information

3.2.3 Site Organization Chart

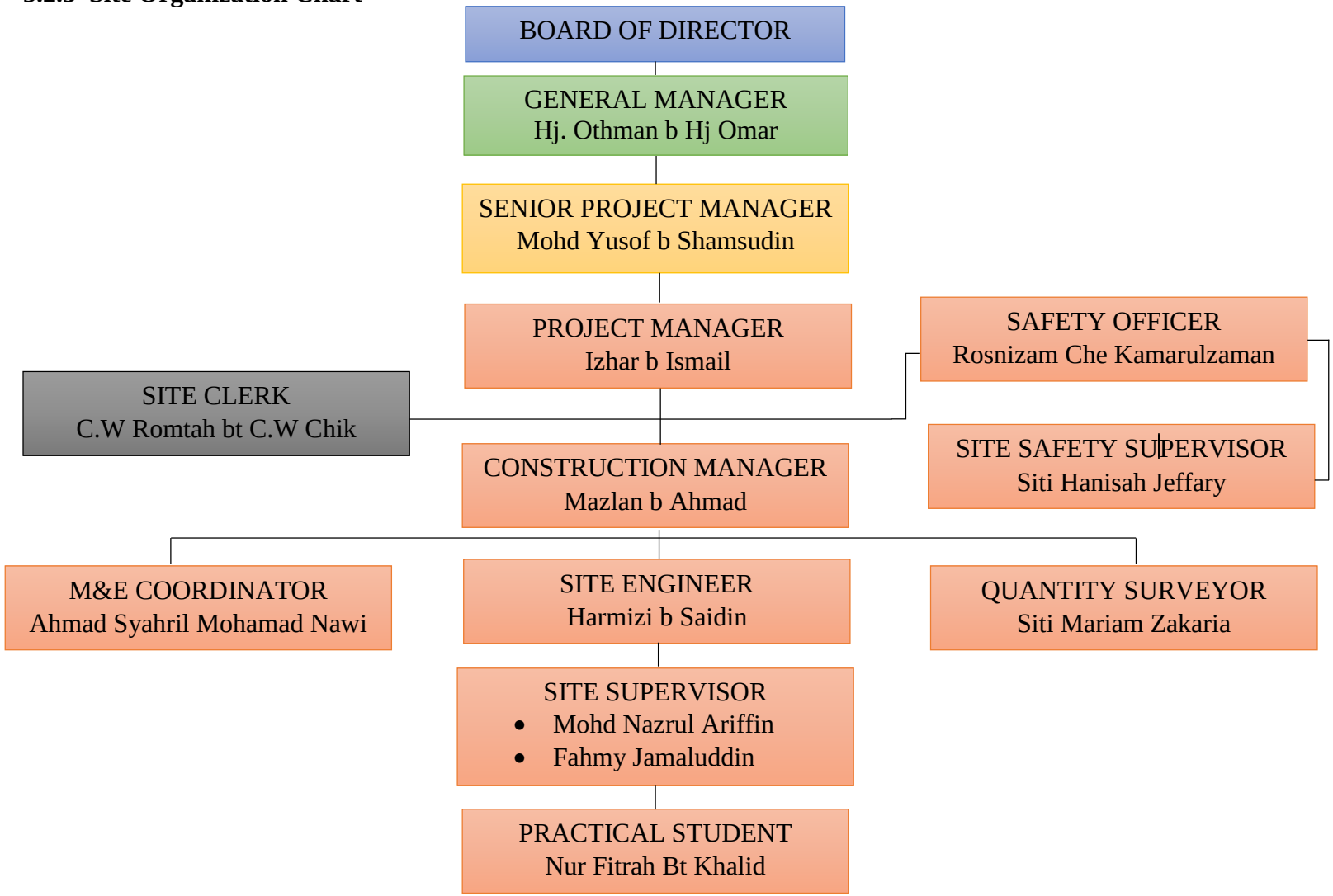


Chart 3.1 : Site Organization Chart

3.3 PROJECT METHODOLOGY OF PRECAST CONCRETE SYSTEM

3.3.1 Project Site Reporting Procedure

- Site Daily Report – Site Engineer/ Site Supervisor shall record all activities at site, work progress, working hour, weather condition, quantity of machineries & tools, problems encountered at site, attendance of site staff & workers at site into the Site Daily Report. The Site Daily Report was completed with SO/ clients/s checked shall be save into ISO Project Department File as a keep recorded.
- Biweekly Progress Report – Site Engineer shall summarized work progress and major problems encounter at site, machinery record, safety & health highlights and man power record for the past 2 weeks into Biweekly Progress Report. Besides, the work progress forecast for coming next two week also needs to include into the Biweekly Progress Report. The Biweekly Progress Report shall be submitted and presented to Project Manager for every early month.
- Project Site Reporting Procedure complete.

3.3.2 Precast Component Ordering Procedure

- Site engineer shall update the precast installation progress and forecast the precast installation to identify the precast component required from Precast Supplier.

- Site engineer shall keep track on type & quantity of precast component stored at site. Compare the list of precast component required and precast component stored at site to avoid "double" order on certain precast component.
- Site engineer shall list down the precast component required in the Precast Element Order Form and send to Precast Supplier via fax or e-mail by 12pm. Site engineer shall allow 3 days of delivery lead time to Precast Supplier for delivery arrangement.
- Any changes on the delivery arrangement must be informed to Precast Supplier by issue another new Precast Element Order Form.
- Precast component ordering procedure complete.

3.3.3 Precast Component Receiving Procedure

- Upon the arrival of the precast component, the quality of precast components delivered shall be checked and the type & quantity of precast component (as indicate on the Delivery Order –DO) shall be verified by the Site Engineer / Supervisor prior to offloading.
- Any major/minor defects on the precast component need to be recorded on the DO with the acknowledgement of the trailer's driver.
- Photos shall be taken on the major/minor defects on the precast component while the precast component still on the trailer, if possible.

- Site engineer/supervisor shall check with Precast Supplier every morning regarding the delivery of that day.
- Precast component receiving procedure complete.

3.3.4 Remedial Work Procedure

- Site engineer shall check with Precast Supplier & designer immediately when they spot any defect on the precast component from Precast Supplier or in-situ work handed over to TCSB from Main Contractor/ Clients.
- Site engineer shall take photographs of the defective item from various angles.
- The case must be recorded and send internal memo for client's information and cc to Project Manager together with the photographs taken.
- Remedial work need to be carried out immediately by Main Contractor/ Client once the approval obtained.
- Upon the completion of remedial work, the delay of work progress incurred shall be recorded in Project Chronology.
- Remedial Work Procedure complete.

3.3.5 Site Surveying Work Procedure

- Prior to the start of as-built survey, Site Surveyor shall obtain from land surveyor appointed by client about the information of main control points. Site survey shall verify all the main control points to ensure that the information given is valid.

- Site Surveyor shall check the as-built position of column starter bar and as-built level of stump and pile cap at least 3 days prior to the commencement of work.
- Site Surveyor shall inform Site Engineer/Supervisor if he detects any dowel bar or level out of tolerance.
- A Site survey report (TC/Forms/0004) on the as-built position of dowel bar and level shall be prepared and submitted to Project Manager. A duplicate copy of the survey report shall pass to Main Contractor's site representative.
- After complete the as-built checking, the Site Surveyor shall set the temporary bench mark (TBM) and major reference line around the building for both the precast installation and in-situ works.
- Site Surveyor will repeat the Step 4 above when the construction progress reach upper floor.
- Site Surveying Work Procedure complete.

3.3.6 Precast Installation & Grouting Work Procedure

** **PLEASE REFER on point 3.12** (Method Statement of Installation, Grouting of Precast Elements & Related Works On Site)

3.3.7 Safety Induction Procedure

- A prior to start work, all workers are required to register themselves to Safety Supervisor. A set of PPE (Safety Helmet & Full Body Harness) will be issued to every worker upon completion of safety induction.
- The worker needs to return the PPE to Safety Supervisor/Site Engineer/Site Supervisor when the project complete. Whoever fails to return the PPE will be penalized.
- For sub contractor, their staff & workers are required to register themselves to Safety Supervisor prior to start work. The staff & workers are must possess CIDB Green Card and valid working permit & passport (foreigner only). The PPE for the staff & workers is at the sub contractor own cost.
- Any worker work worked at site without attend safety induction will be removed from the site immediately and the employer will be penalized (for sub contractor).
- Safety Induction Procedure complete.

3.3.8 Safety Penalty Procedure

- Safety Supervisor/ Site Engineer /Site Supervisor shall record the detail of incident in Safety Penalty Record when they find that the staff/worker/sub contractor breach the safety rules and regulations at site.
- Photograph of the incident must be taken as proof to support the Safety Penalty Record.

- The Safety Penalty Record will be submitted to Safety Supervisor. Safety Supervisor shall warned the person involved and brief the staff/worker the penalty action will be taken during safety toolbox meeting.
- The Safety Penalty Record will be filled and a copy will be submitted to HQ for the deduction of penalty from wages or payment of the staff/worker involved.
- Safety Penalty Procedure complete.

3.3.9 Project Handover Procedure

- Upon the completion of both major work (precast installation, grouting & related in-situ works) and minor work (repair & finishing work) of the project, Site engineer shall arrange an appointment with a Main Contractor's site representative for handover inspection.
- Site engineer shall prepare the Handover Form- TC/Forms/0059 which is to be filled by a Main Contractor's site representative for every location of the project inspected.
- All scopes of works/Handover by Teraju Construction Sdn. Bhd. Only accepted / confirmed by Main Contractor/ Client for the commencement of another Contractor trade of works.
- Site engineer shall arrange to rectify all defects (if any) throughout the project period and condition as stipulated in the Contract.

- Once the rectify work complete, arrange another appointment with a Main Contractor's site representative for another round of handover inspection to verify the rectification work.
- The Main Contractor's representative shall sign off the Handover Form upon the completion of handover inspection.
- The Project Handover Procedure complete.

3.4 DESIGN CRITERIA FOR PRECAST COLUMN AND BEAM

Good precast concrete design for column and beam should be conducted thoroughly and carefully to avoid the design changes during construction. The design process should take into account the project's nature, regarding all its characteristics, surrounding environment, and ground conditions. The most important process in design of precast column and beam includes :-

- Outline technical specifications
- Design sketch
- Initial cost plan
- Provisional list of drawings required
- Provisional list of annotations of drawings.

3.5 TYPES OF PRECAST COLUMN AND BEAM BEEN USED

3.5.1 Precast Concrete Column

Columns should be designed as ductile members to deform inelastically for several cycles without significant degradation of strength or stiffness under the design earthquake demand. Columns supporting a superstructure that is built using balanced cantilevered construction, or other unusual construction loads, are not addressed herein.

As for this project, the type of precast concrete column used is Single Tie Column With Corbel which have two dimension 300mmx300mm and 400mmx400mm.

Figure 3.3 : Column Component At Site

3.5.2 Precast Concrete Beam

Beam is a structural element that primarily resists loads applied laterally to the beam's axis. Its mode of deflection is primarily by bending. The loads applied to the beam result in reaction forces at the beam's support points. The total effect of all the forces acting on the beam is to produce shear forces and bending moments within the beam. Precast beam are characterized by their manner of support, profile (shape of cross-section) , length and their material.

As for this project, the type of beam that been used is Upright Tee Beam and Rectangular Beam which have width(B) 600mm-1200mm at 50mm increment and depth(H) 300mm-1000mm at 50mm increment.

Figure 3.4 : Beam Component At Site

3.6 PRODUCTION PROCESS OF PRECAST CONCRETE ELEMENTS

3.6.1 Mould Cleaning and Oiling

- Any concrete or other material on mould internal face will be loosened using a flat blade steel scrapper.
- All dust and loose materials should be free from the insides of the mould.
- Mould base, side forms and end forms will be lightly oiled with de-moulding agent (oil/water base). Extra oil will be wiped off.

Figure 3.5 : Example Of Mould Precast Concrete

3.6.2 Reinforcement Caging and Placing

- Rebar cages will be prepared according to the production planning schedule and in specification to production drawings at the outdoor rebar yard.

- Ready cages will be placed inside the moulds. Correct concrete cover will be ensured through the use of spacers both underneath as well as the sides of the steel cages.
- For pre-stressed products, steel strands will be pulled and stressed to the specified elongation prior concreting.
- Cast-in items shall be positioned in accordance with the respective production drawings.

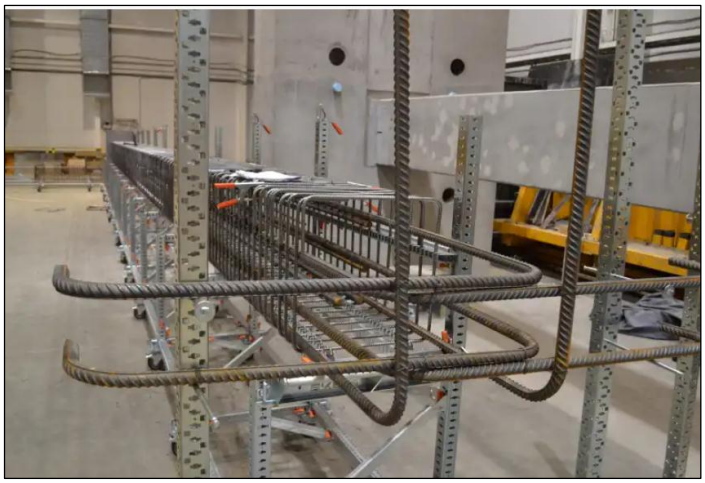


Figure 3.6 : Example Of Reinforcement Caging

3.6.3 Mould Fixing

- The side forms of the mould shall be closed and tightened properly.
- The concrete cover of the cages will be checked as per requirements of the standard as per production drawing.

3.6.4 QA/QC Inspection

- The Production Supervisor will call the QC inspector for the pre-hour inspection. The Checklist for Pre-casting Works- RC elements, form QA-F01 (In attachment) , will be updated accordingly.
- QC Inspector will give permission to start casting, after final inspection is in accordance to the requirements.

Figure 3.7 : Pre-casting Inspection

3.6.5 Concrete Batching

- The Production Supervisor will order the concrete from the batching plant. The Production Supervisor will clearly state the type of concrete and volume required. The Batching Plan Operator will start mixing the concrete according to the approved concrete mix design.

- The concrete will be discharged into a ready mix truck with maximum capacity of 7m3 and sent to the casting area. The concrete will then be discharged into concrete buckets and brought to the discharge points either by use of mobile crane.

3.6.6 Concrete Casting

- The concrete will be discharged into the mould from the top. Care must be taken not to overfill, no spillage at side of mould and ensure concrete are evenly distributed inside the mould. The concrete shall be placed in layers in accordance to the Production Supervisor's instructions.
- The concrete will be vibrated using poker vibrators. Vibrating shall be done until bubbles have been sufficiently expelled from the concrete.
- When the element has been casted, trowelling on the exposed surface will be done to obtain a smooth surface in accordance to the production drawing. Where a rough surface is required, brushing will be done.

Figure 3.8 : Concrete Casting

3.6.7 De-moulding

- RC component will be de-moulded after getting approval from QAQC Department, after attaining the de-moulding strength as specified in the Production Drawing.
- The element will be marked accordingly for identification as per clause 2.5.1 before de-moulding.
- The side forms will be removed and the side forms will be opened gently with the use of crane.
- The elements will be lifted out from the moulds using crane. Whenever necessary, additional stacking timber will be placed so as to ensure that the lifting hooks and cables do not damage or strain the element.
- Where lifting belts are required for safety reasons, the element will be lifted slightly and packing wood shall be placed below the element. Only then can belt be strapped onto the element for lifting.
- Thereafter, the elements is lifted onto stands for further inspection and finishing works.

3.6.8 Finishing Works

- The QC Inspector shall examine the element which has been placed on stands. If the element does not meet specification, a Non Conformance Report form QA-F02 (In Attachment) shall be raised. Any deviations from

the production drawings and specifications will be clearly highlighted to the finishing team.

- The relevant finishing works will be carried out on the element.

3.6.9 Final Inspection

- Upon satisfactory finishing works, a final inspection will be carried to confirm acceptability of the finishing works. Thereafter the Post Concreting and Finishing Checklist of the Checklist for Pre Casting works QA-F01 (In Attachment) shall be completed. The Checklist for the Pre casting works shall be recorded and filed in the factory.
- Only then, QC personnel will mark the element with a green spray dot to indicate that the element is ready to delivery.

3.6.10 Handling and Delivery

- Once delivery is confirm the Stockyard Supervisor will issue a Delivery Order together with the elements to the appointed transporter.
- The elements will be loaded on the lorry under the care of the Stockyard Supervisor. Proper stacking timber will be used where appropriate to protect the elements against damage during lifting operations.
- The transporter , the Stockyard Supervisor and client's representative will confirm that the elements were loaded without damage by jointly signing on the Delivery Order. Any damaged elements will be unloaded immediately and the Delivery Order amended to reflect the new manifest.

- The elements will be delivered to site using suitable transport such as conventional lorry, low bed trailer or pole trailer. The elements will need to be strapped down for safety and stability before the lorry is allowed to move out the loading area.

Figure 3.9: Component Precast Column And Beam Arrived At Site

Figure 3.10: Transfer Precast Components Using Mobile Crane

3.7 ADVANTAGES AND DISADVANTAGES OF PRECAST CONCRETE

ADVANTAGES OF PRECAST CONCRETE

- High efficiency and good quality control
- Durability and Very rapid speed of erection
- Rapid construction on site
- High quality because of the controlled conditions in the factory.
- Prestressing is easily done
- Aesthetic versatility
- Low maintenance and low cost

DISADVANTAGES OF PRECAST CONCRETE

- It requires careful supervision and more skilled workers for producing the members
- Very heavy members
- Uniform spacing between beams are required in the structure which may be difficult
- Some members are broken up and wasted during the time of transportation from the factory to the construction site.
- It cannot be used for two-way structural systems
- Somewhat limited building design flexibility

3.8 TRADES, PERSONNEL INVOLVED

- Surveyor / Chain man
- Supervisor
- IBS Installers
- Grouters
- Crane Operator
- Lorry Driver
- Signalman
- Rigger
- Flagman

3.9 PLANT, MACHINERY, EQUIPMENT AND TOOLS USED

PLANT AND MACHINERY

- Mobile Crane 25T/45T
- Lorry (40 footer trailer)
- Robin Engine (concreting)
- Mini Mixer (grouting)

EQUIPMENT

- Lifting clutch
- Lifting belt
- Shackle
- Wire rope
- I-beam and clamper
- Ladder
- Mobile Scaffold

TOOLS

- Drill
- Hacker
- Grinder
- Mixer
- Mini air compressor (grouting)

3.10 SAFETY ASPECTS

Description	Safety Controls
Trades And Personnel	• Make sure all the relevant permit have been issue before start work. • Site safety supervisor need to brief all the workers prior to entering the site on work task, access route along with the safety requirement and procedures for the site. • Make sure pre-inspection off PPE has been carried out prior entering to PPE zone such as workers need to wear basic PPE : [safety shoes, safety helmets, goggles and other relevant PPE as per advised while commencement].
Plant, Machinery , Equipment And Tools	• Make sure the machineries are inspected prior to start work. Checklist to be filled and submitted. • Carry out inspection on lifting equipment and ensure working condition and make sure all the lifting equipment have certificate. • Check all the scaffold material in good condition before erect.
Tools	• Ensure all the power tool, extension cable, connection are in good working condition and all the tools go through DCMT checklist before permitted to use.

Table 3.2 : Safety Aspects At Site

3.11 QUALITY ASSURANCE OF PRECAST CONCRETE COLUMN AND BEAM

3.11.1 Procedure of Quality Inspection Before Installation

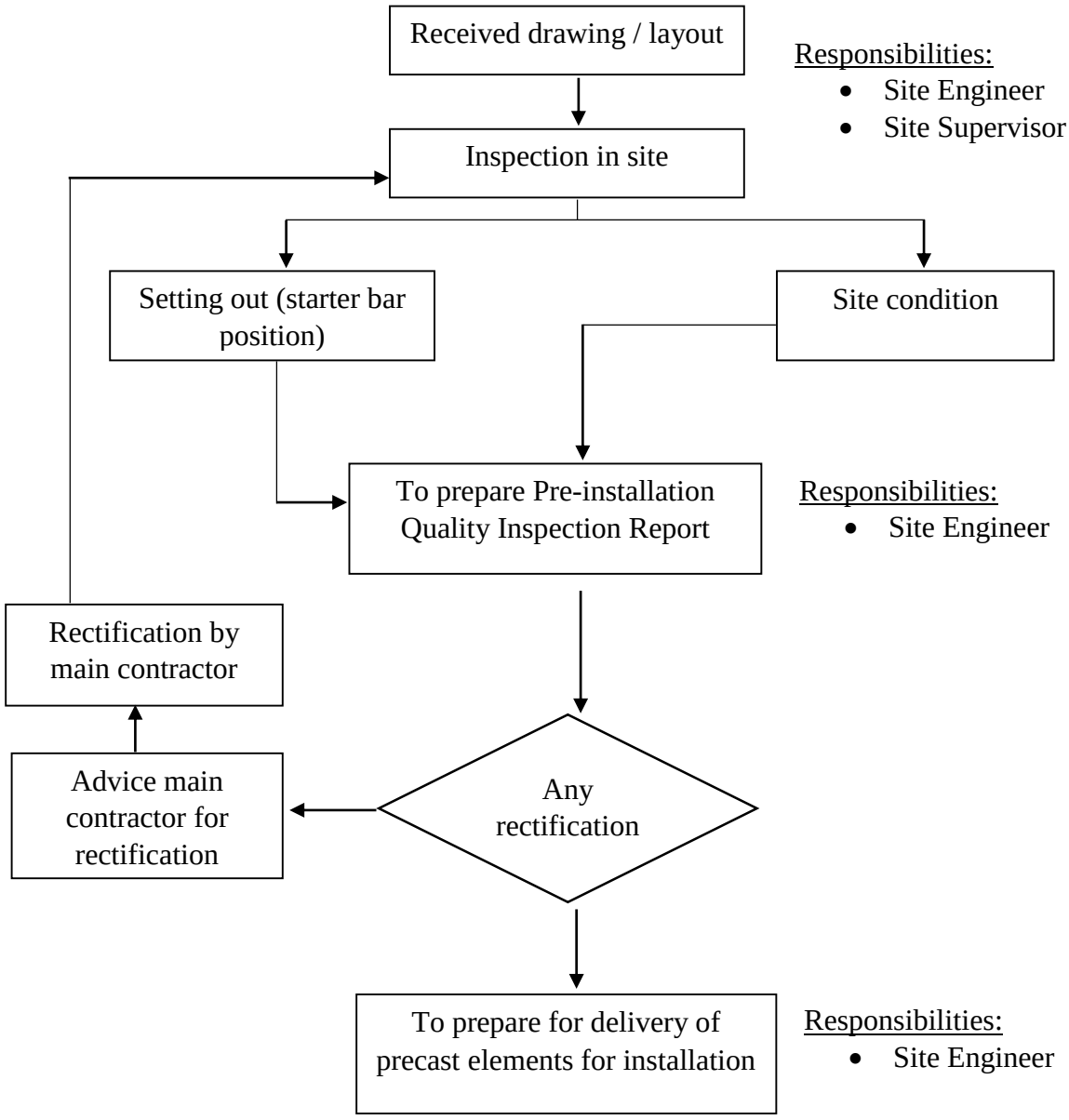


Chart 3.2 : Flow Chart Procedure of Quality Inspection Before Installation

3.11.2 Quality Inspection During Installation

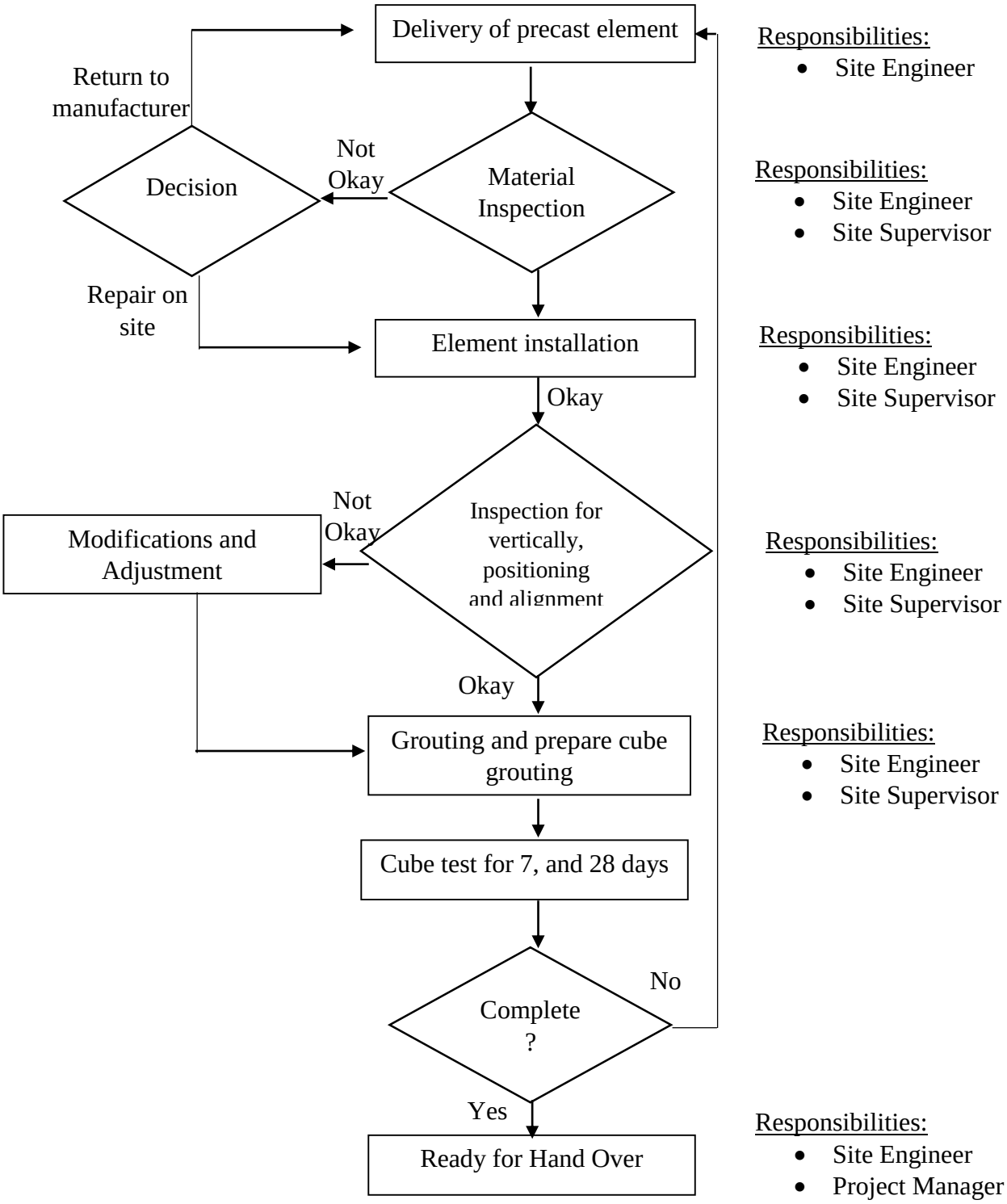


Chart 3.3 : Flow Chart Procedure of Quality Inspection During Installation

3.11.3 Post Installation Quality Inspection

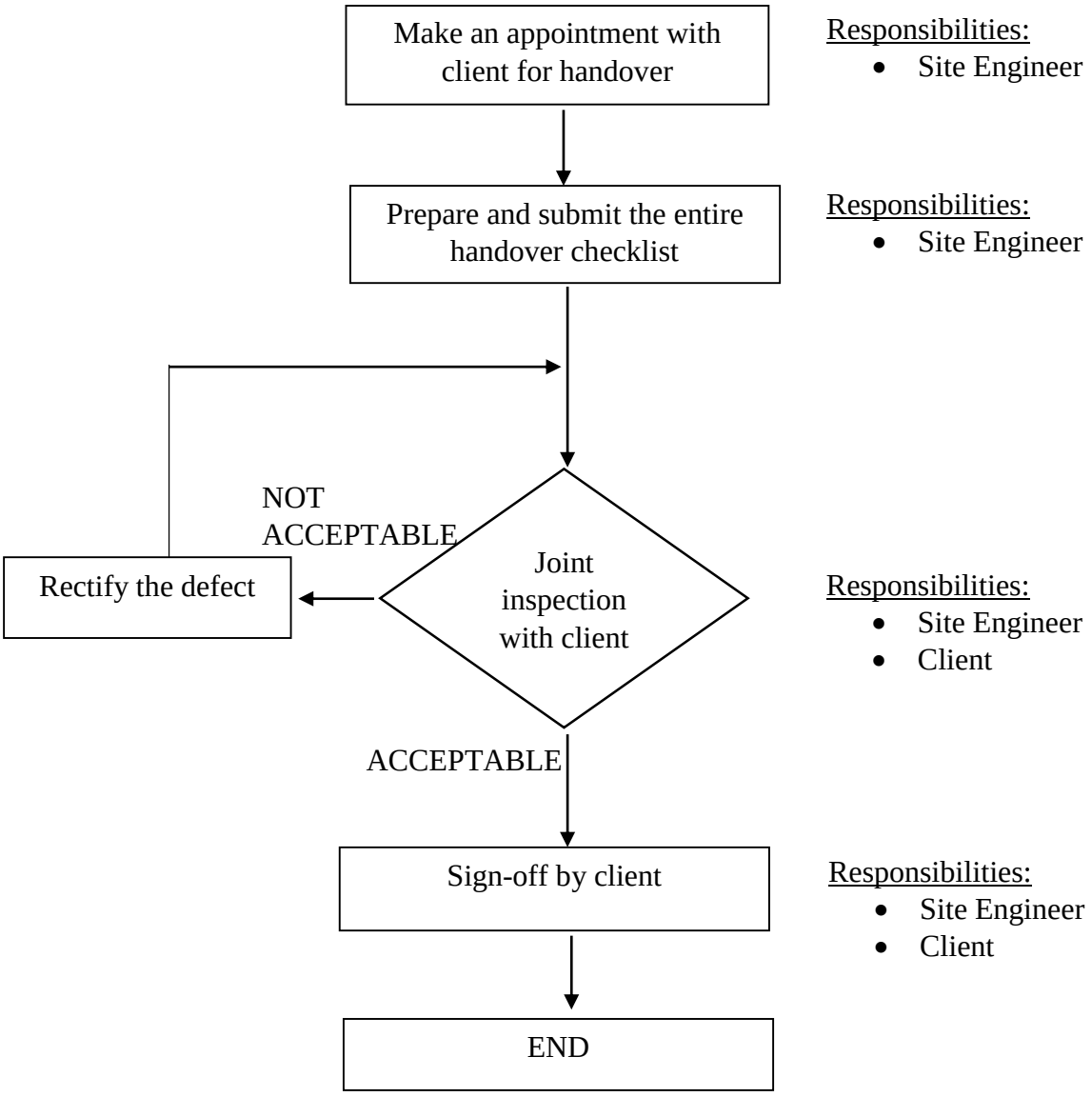


Chart 3.4 : Flow Chart of Post Installation Quality Procedure

3.12 WORK INSTALLATION AND GROUTING PROCEDURES

3.12.1 Precast Column Installation & Grouting Work Procedure

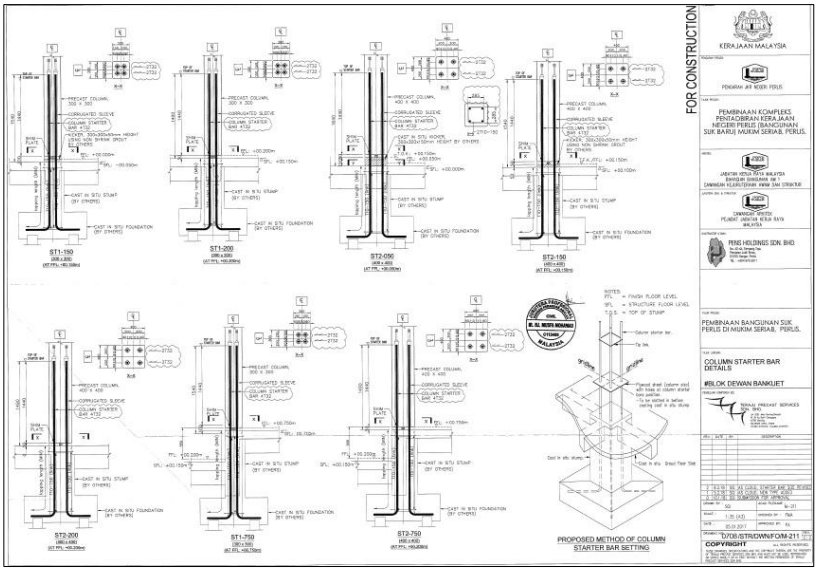


Figure 3.11: Column Starter Bar Details Plan

1. Prior to the commencement of precast column installation, check the starter bars position, level of the floor and mark the setting out of the column on the floor.
2. Tie a string to the lifting loop on top of the column.
3. Crane park into the position where the location of precast column to be installed is within the working radius and hoisting capacity of the crane.
4. Crane slowly tilts up the precast column until it is vertical and hoist it to the location where precast column to be installed. The movement of the precast column during the hoisting process can be controlled by the string.
5. When the precast column reaches the install location, the workers will hold the precast column into its correct orientation and position.

6. The workers will instruct the crane slowly lower down the precast column to allow the starter bars to slot into the corrugated ducts in the precast column. This can be shown in Figure 3.15.
7. The precast column will finally rest on shim plates at bottom. The required bottom level of precast column is control by the shim plates. The crane stops once the precast column rest on the shim plates. This can be shown in Figures 3.13.
8. 2-4 nos of push-pull props will install to hold the precast column with 1 end fix to the column and the other end fix to the floor. This can be shown in Figure 3.14.
9. The vertically of the precast column will check at both sides of the column by using theodolite. Once the verticality check is done, crane will slowly lower down the wire ropes. The verticality of the precast column will check again before remove the wire ropes and shackles on top of the precast column. This step can be shown in Figure 3.12.
10. The worker will seal the gap at the bottom of precast column with the dry mixed of non shrink grout (mortar form).
11. The estimated volume of the non shrink grout for each column will be calculated by the Site Supervisor.
12. When the non shrink grout at the bottom of precast column is set, the workers will start mixing the non shrink grout & water at the correct ratio by using mixing gun and pouring the non shrink grout (liquid form) into the

corrugated ducts from the opening at the middle of precast column. Only 2 out 4 openings will be poured with non shrink grout. The pouring of non shrink grout stop when the non shrink grout over-flow from the other 2 openings.

13. Clean up the non shrink grout on the precast column or floor(if any) and seal the corrugated duct openings at the middle of precast column.
14. The volume of the non shrink grout used will be recorded. Compare the actual used volume of non shrink grout with the calculated volume. The difference between the results must not exceed 10% of the calculated volume.
15. The Compressive Strength of Non Shrink Grout (NSG) shall be minimum 50MP after 28 days.
16. The Precast Column Installation & Grouting Work Procedure complete.

Figure 3.12 : Vertically, Alignment of Precast Column At Site

Figure 3.13 : Column Seated On The Top Shim Plate at site

Figure 3.14 : Installation of Pull Push Props At Site

Figure 3.15 : Column Starter Bar Slot Into Duct At Site

3.12.2 Precast Beam Installation & Grouting Work Procedure

1. Prior to the commencement of precast beam installation, check the dowel bars & neoprene pad position on corbel and corrugated ducts in the precast beam are free from any blockage.
2. The Crane is instructed by the signal men to ensure that the location of precast beam to be installed is within the working radius and hoisting capacity of the crane.
3. A rope is tie to the precast beam to control the movement of the beam during the hoisting process.
4. The precast beam is hoisted to install location by using a set of 2-legged wire rope.
5. When the precast beam approach the install location, the crane will slow down the swing to let the workers guide the beam to the correct position & orientation by using two nos rope tied at the precast beam.
6. The signal men will instruct the crane to slowly lower down the precast beam to allow the dowel bars to slot into the corrugated ducts. This can be shown in Figure 3.17.
7. The crane stop immediately once the precast beam is touch on the neoprene pad.
8. Figure 3.18 shows the workers will adjust the precast beam to match the setting out line before the precast beam is allowed to seat fully on the corbel. (Note: workers not allow to stand at beam during the installation)

9. The wire rope will be removed after the checking. This can be shown in Figure 3.19.
10. The grouting work of precast beam start shortly after the removal of wire ropes. When the dry mixed of non shrink grout is set, the workers will mixed the non shrink grout with water at correct ratio by using mixing gun and start pouring the non shrink grout into the corrugated ducts and vertical gap at both ends of the precast beam. The pouring stop when the corrugated ducts and vertical gaps are full.
11. Clean up the non shrink grout on the precast beam/column or floor.
12. The Precast Beam Installation & Grouting Work Procedure complete.

Figure 3.16 : Installation of Precast Beam at Site

Figure 3.17 : Beam Slot Into Dowel Bar at Site

Figure 3.18 : Adjust Beam Proper Seated On Corbel at Site

Figure 3.19 : Remove of Shackle, Wire Rope

3.13 SUMMARY

In this chapter, I had learned so many things through my own experience working at site construction and how to communicate with people such as with workers and others to get some information about the topic that I had choose. In chapter 3 also about the topic about my case study state which all about the information based on my case study such as introduction of precast column and beam, design and types of precast column and beam which used, method statement for production and QA/QC procedures for precast elements, installation works of precast concrete column and beam until complete and relevant information included a picture to completed the report So, I can feel and see the real situation at the construction site and I also can see how they build the building with phase by phase to complete the whole building.

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CHAPTER 4 :

PROBLEMS AND RECOMMENDATION

4.1 INTRODUCTION

In this chapter which Problem & Recommendation chapter, it all about focusing and identifying the problems that occurs on my case study during practical training under company Pens Holdings Sdn. Bhd and also focusing on how to overcome the problem with looking for suitable recommendation to this building.

Some of the problem might be minor and some of them could be major, sometimes the minor problem that occurs are not be taken any action due to lack of knowledge and time. All the problems should be take a proper action. So, the problems should be analyzed to overcome the problems so that occurs and make a decision for recommendation to overcome the problems that should be changes. Some of the problem should take fastest action because it involved with the safety of the workers at the construction site before any problems such as severe injury occurred.

The objective of identifying the problem and recommendation that are have been overcome is to make sure that all the problems can be repair with a proper action.

4.2 PROBLEMS AND RECOMMENDATION

NO	PROBLEMS	RECOMMENDATION
1.	The main problem about my case study is the worker/ installer do not do the job neatly and orderly on some phase of installation of precast column and beam.	Project Manager/ Supervisor who take care of the construction site should take a proper control to the worker to do their job with a neat and orderly because installation of column and beam is important part of the building. If they do not do a job competently, it can cause any problems on the building such as damage or collapse that can harm the occupation inside the building.
2.	Other problems on my case study is the workers does not take a proper safety aspects when carry out the job of construction such as does not wear the safety boot, safety helmets and etc. The worker also does not adopt safety measures when carry out the job because all the waste material such as nails flung everywhere, so that can	Site Safety Supervisor (SSS) should take a proper action such as always visit the site every day to make sure all the workers follow the basic PPE at site construction. SSS also should control the worker who do not take safety measures and SSS also should give the brief about the safety measures in construction for

	harm the worker or visitor who visit the site.	the worker before they start do their job every day
3.	Lastly , the problems that always occur at case study site is which does not have enough stationary equipment for site office such as paper, pen and etc. because of does not have enough petty cash to buy it.	The main office (HQ) should provide more amount of money petty cash or find any supplier in order to buy all the stationary such as paper which is important for Photostat the building plan and make monthly progress report.

Table 4.1 : Problems and Recommendation

CHAPTER 5 :

CONCLUSION

5.1 CONCLUSION

In a nutshell, precast concrete system should be seen as an innovative improvement in the construction industry. It is imperative that precast concrete system is seen as an evolution of construction using new and innovative technique rather than a revolution.

Apart from that, the reliability of precast concrete construction also depends on the expertise level of a labourer in carrying out the installation task. A thorough supervision, especially in jointing, should be executed to prevent a problem such as water seepage through precast concrete connection. The installation drawings, time-scheduling and instructions which has been produced during a planning phase should be followed accordingly.

Furthermore, the delivery process of the precast concrete component to the site should have continuity and just in time to avoid delay in the installation process and buffer stocks kept on site. As for handling purposes, a mobile crane will be used for unloading and placing the component on site as well as for installation.

Lastly, the loading capacity of hoists and cranes for installation of precast concrete components need to be considered based on their weight and size. High accuracy and efficiency when handling IBS components are essential by properly coordinate them during installation and storage with the purpose to avoid a serious problems such as delay and wastage.

REFERENCES

According to En. Mohd Yusof Bin Shamsudin, Senior Project Manager, Pens Holdings Sdn. Bhd.

According to En. Mohd Faizul Bin Abdul Rahman, Assistant Project Manager, Pens Holdings Sdn. Bhd (PHSB)

According to En. Mazlan Bin Ahmad, Construction Manager, Pens Holdings Sdn. Bhd (PHSB)

According to Cik Siti Hanisah Bt. Jeffary, Site Safety Supervisor, Pens Holdings Sdn. Bhd (PHSB)

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Zulkifli, H (February 2014) MIDF Research On Construction IBS, Kuala Lumpur

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APPENDIX

TERAJU PRECAST SERVICES SDN. BHD.

CHECKLIST FOR PRECASTING WORKS IN FACTORY

PROJECT TITLE : _____ SERIAL NO. : _____

CONTRACTOR : _____ DATE : _____

PANEL MARKING : _____ DWG. NO.: _____ MOULD NO. : _____

Precast Column / Beam / Wall / Staircase / Mid Landing / RC Plank *

Inspection Before Concreting	1st	2nd
A. MOULD PREPARATION		
1. Dimension Checking		
2. Mould Condition		
3. Form Oil Application		
4. Cleanliness		
B. REINFORCEMENT		
1. Bar Size, Number, Spacing		
2. Bends, Laps, Anchorage		
3. Starter & Dowel Bars		
4. Cover, Spacers, Chairs		
5. Lifting Hooks		
C. Cast-in-items (If applicable)		
1. Corrugated Ducts.		
2. Openings, Recess, Chamfers		
3. Beam Hanger		
4. Coupler		
5. Others		

Inspection During / After Concreting

G. DURING CONCRETING

1. Date of Casting : _____
2. Test Cube Marking : _____
3. Concrete Slump : _____ mm
4. Compaction : Acceptable / Unacceptable *
5. Grade of Concrete : _____ N/mm^2
6. Volume: _____ m^3

H. AFTER CONCRETING

1. Curing : Acceptable / Unacceptable*
2. Cube Strength at Demoulding / Transfer : _____ N/mm^2
3. Demoulding : Acceptable / Unacceptable*

I. CONFORMANCE CHECK

1. Dimension

	Requirement		Actual
Length	_____	mm	_____ mm
Width	_____	mm	_____ mm
Height	_____	mm	_____ mm

2. Cast-in-items, Opening, Recesses : Acceptable / Unacceptable*
3. Starter & Dowel Bars, Lifting Hooks : Acceptable / Unacceptable*
4. Corr. Pipes, cleanliness, position, size : Acceptable/ Unacceptable*

J. FINAL INSPECTION

1. Finished / repair works : Acceptable / Unacceptable*
2. Cleanliness of items / rebars : Acceptable / Unacceptable*

K. RECTIFICATION REMARKS

_____

_____

E. RECTIFICATION REMARKS

_____

_____

_____

_____

_____

F. CHECKED BY:

_____

Production/QA
(Name/Signatory/Date)

L. APPROVED BY:

_____

QA Dept.
(Name/Signatory/Date)

Legend : ✓ = Acceptable ✗ = To be rectified NA = Not Applicable * Delete whichever not applicable

Note : If component found unacceptable during or after concreting or after demoulding a NCR shall be raised!

NCR : YES / NO *
If yes refer to NCR S/N : _____

TERAJU PRECAST SERVICES SDN BHD

No. : /

NON-CONFORMANCE REPORT

INTERNAL : ☐

Project : _____

Precast Ref. No. : _____

Casting Date : _____

Precast Dimensions : _____

EXTERNAL : ☐

Delivery Order No : _____

Delivery Date : _____

Supplier : _____

Transport No : _____

NATURE OF NON-CONFORMITY

REPORTED BY : .....

DATE : .....

REPORTED TO : .....
PRODUCTION/ PURCHASING

DATE : .....

ACTION TAKEN

- ☐ Repair
- ☐ Replace
- ☐ Request for concession
- ☐ Reject/ Dispose *
- ☐ Keep as stock for future use
- ☐ Others (Please specify)

.....

.....

APPROVED BY:

.....
PRODUCTION/ PURCHASING

DATE : .....

.....
QAQC

DATE : .....

ACKNOWLEDGED BY:

SUPPLIER REPRESENTATIVE

DATE : .....

* Extend copy to Planner

Attachment 3

Precast Products Sdn. Bhd.
(Company No. 105451-H)

QUALITY INSPECTION CARD (Prestressed Planks & Hollow Core Slabs)

PROJECT : _____ DATE CAST : _____ BED NO : _____ SLAB TYPE : _____

TOLERANCES : Length ± 15mm or L / 1000 (whichever figure bigger)
Thickness ± 5mm or h / 40 (whichever figure bigge
Width +3mm .....-6mm (narrowed slab - 20mm)
Individual flange thickness ± 20%.Total flange thickness ± 10%
Individual web thickness ± 20%. Total web thickness ± 10%
Every slabs to be checked

RECESSES : Made to fresh concrete ± 50mm
Made to hard concrete ± 15mm

STRANDS : Average slippage (S) max 1.5mm. Individual slippage max 3mm
Height position (H) ±10mm (40mm)

NO	SLAB MARK	LENGTH		HOLES/ RECESSES	WIDTH	SOFFIT	WEB	FLANGE
		THEO	ACTUAL					
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

Slab Seq No	ACTUAL SLAB HEIGHT Active / Passive End							
	a	b	c	d	e	f	g	h

Slab Seq No	ACTUAL STRAND COVER Active / Passive End							
	a	b	c	d	e	f	g	h

Remarks: _____

APPROVED BY:

CHECKED BY :

Production Supervisor
Name :
Date :
Time :

QA/QC Inspector
Name :
Date :
Time :

QA/QC Department
Name :
Date :
Time :

chment 5

Precast Products Sdn. Bhd.

PRECAST PRODUCTS SDN BHD

(Company No. 105431-H)

CUBE TEST RECORD

PROJECT : ____________________

E	CASTING DATE	TIME FINISH	CONCRETE GRADE	MIX NO.	CEMENT QTY/TYPE	ELEMENT TYPE/BED	SLUMP (mm)	AGE AT TEST (Hrs/Days)	TESTING DATE	CUBE WEIGHT (gm)	LOAD (kN)	STRENGTH (N/mm²)	AVERAGE (N/mm²)	CONCRETE SPVR	BATCHER	TESTED BY

VERIFIED BY:

____

QA/QC Technician/ Supervisor

PRODUCTS SDN BHD

Precast Products Sdn. Bhd.

(Company No. 105431-H)

STRAND STRESSING CHECKLIST (Bundle Jack)

PROJECT : _____ DATE : _____

PRODUCT : _____ PANEL MARKING : _____

BED NO : _____

restressed : _____ N/mm²

NSPECTION PRIOR TO CASTING

BED		STRAND PATTERN
Cleanliness	Oiling	

NSPECTION DURING STRESSING

trand No.	Size (mm)	Actual Elongation (mm)	Strand No.	Size (mm)	Actual Elongation (mm)
				Average	mm
				Min / Max.	mm

Theoretical Elongation = _____ mm

INSPECTION DURING CASTING

Concrete Workability	Slab/Plank Dimensions/ PB Beam		Surface Requirement	
	Height	Width	Smooth	Roughen

REQUESTED BY:

_____
Production Supervisor

Name :
Date :
Time :

VERIFIED BY:

_____
QAQC Department

Name :
Date :
Time :

Attachment 7

QA-F19

PRODUCTS SDN BHD

Precast Products Sdn. Bhd.

(Company No. 105431-H)

No. A00001

NON-CONFORMANCE REPORT

INTERNAL : ☐

Project : _____

Precast Ref. No. : _____

Casting Date : _____

Precast Dimensions : _____

EXTERNAL ☐

Delivery Order No : _____

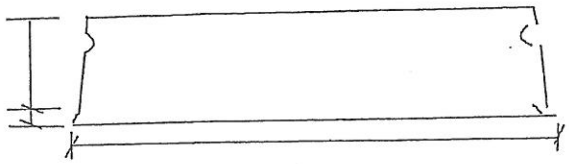
Delivery Date : _____

Supplier : _____

Transport No : _____

HCS :

- Strand Position
- Stress : _____
- Strand Size : _____



NATURE OF NON-CONFORMITY

REPORTED BY : .....

DATE : .....

REPORTED TO : .....
PRODUCTION/ PURCHASING

DATE : .....

ACTION TAKEN

- ☐ Repair
- ☐ Replace
- ☐ Request for concession
- ☐ Reject/ Dispose *
- ☐ Keep as stock for future use
- ☐ Others (Please specify)

.....

.....

For Raw Material Non-Conformance

ACKNOWLEDGED BY:

SUPPLIER REPRESENTATIVE

DATE : .....

APPROVED BY:

.....
PRODUCTION/ PURCHASING

DATE : .....

.....
QAQC

DATE : .....

Extend copy to Planner

Attachment 10

TERAJU PRECAST SERVICES
SDN BHD.
Lot 3232, Jalan Banting / Dengkil,
Bt. 35, Kg. Bukit Changgang,
42700 Banting, Selangor Darul Ehsan.
Tel : +603-3149 1570 / 1581 Fax : +603-3149 1573

Project Name :		Delivery Order No :	
Customer :			
Attn :		Project No :	
H/P no :		Date :	

Item	Marking	Description	Width (mm)	Length (mm)	Weight	Quantity (nos)
					Total :	

Lorry No :		Arrival at Site		A.M/P.M
Transporter :		Unloading Started		A.M/P.M
Driver Name :		Unloading Completed		A.M/P.M
I/C No :				
H/P No :		Received the above mentioned goods in good order and condition		

Arrival at Factory :	
Loading Started :	
Loading Completed :	

.....
Signature and Chop of Customer

Prepared by :	
Name :	

Timber to be returned : nos

TCSB 656530-D	**TERAJU CONSTRUCTION SDN BHD** No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment 1 Version 1 REF. NO. : TC/Forms/0001 Effective Date : 01 Oct 2011 PAGE : _____ of _____

SITE VISIT REPORT

PROJECT :

LOCATION :

DATE OF VISIT :

PART A : Mark the folowing 'point of shoot' on the project site layout and attach the photo taken.

- ☐ *POINT 1* : Building location picture
- ☐ *POINT 2* : Site entrance picture
- ☐ *POINT 3* : Obstacles and potential obstacles to crane path
- ☐ *POINT 4* : Site geographical terrain
- ☐ *POINT 5* : Others (Please specify) : _____

PART B : Mark/highlight the folowing essential item on the project site layout.

- ☐ *ITEM 1* : Temporary road for accesibility
- ☐ *ITEM 2* : Location for stocking area within the awarded site
- ☐ *ITEM 3* : Power supply requirement and sources
- ☐ *ITEM 4* : Water supply requirement and sources
- ☐ *ITEM 5* : Accomodation within the awarded site
- ☐ *ITEM 6* : Others (Please specify) : _____

*ATTACHED DRAWING AND PHOTO FOR SUBMISSION

SITE OVERVIEW

RECORDED BY : Signature: _____ Name: _____ Date:	VERIFIED BY : Signature: _____ Name: _____ Date:

	TERAJU CONSTRUCTION SDN BHD No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment Version 2 REF. NO. : TC/Forms/0003 Effective Date : 31 Jan 2017 DATE :

WORKERS PARTICULAR

PROJECT :

LOCATION :

No	Name of Workers	Passport/ permit No	CIDB No.	Nationality	Date of Issue	Date of Expiry

Note: Please enclose copy of workers passport and work permit

RECORDED BY:.....

NAME :.....

DESIGNATION :.....

TERAJU CONSTRUCTION SDN BHD
No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan.
Tel : 03-33445670 Fax : 03-33415672

SITE SURVEY REPORT

PROJECT :
DRAWING REF NO :

ELEMENT	GRIDLINE	BOC LEVEL	HORIZONTAL ALIGNMENT *Specifiy the dimension form centre line *Highlight unacceptable position of bar	VERTICAL ALIGNMENT	REMARKS
			℄ ℄		
			℄ ℄		
			℄ ℄		
			℄ ℄		
			℄ ℄		

Checked by:
(Teraju Rep.)
Signature _____
Name ( )
Date

Approved by:
(Client Rep.)
Signature _____
Name ( )
Date

TCSB 855686-D	**TERAJU CONSTRUCTION SDN BHD** No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment 5 Effective Date : 01 Oct 2011 REF. NO. : TC/Forms/0005 Version 1

PRECAST ELEMENT ORDER

ATTENTION : _____ DATE ORDER : _____

FROM : _____ PAGE : _____

PROJECT NO : _____ REF NO : _____

MAIN CONTRACTOR : _____ FAX NO : _____

PROJECT : _____ DATE AT SITE : _____

NO	ELEMENT MARKING	QTY	WEIGHT (TONES)	TOTAL WEIGHT	FLOOR LEVEL	LOCATION
	TOTAL					

NOTES: _____

_____

_____

_____

Contact Person :

H/Phone No. :

TERAJU CONSTRUCTION SDN BHD No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment 6 REF. NO. : TC/Forms/0006 DATE :	Effective Date : 01 Oct 2011 Version 1

PRE-CONCRETING CHECKLIST

Project	:	Structural Element	: Beam Top / Column Head / Topping Slab*
Project No.	:	Date of concreting	:
Subcontractor	:	Grade &Volume of concrete	:
Location	:		

* Delete whichever not applicable

Items to be checked		Acceptability				Remarks
		TCSB Rep		Client		
		YES	NO	YES	NO	
A. Formwork	*Alignment *Level *Dimensions *Rigidity and bracing *Sealing againts grout leaks *Cleanliness *Oiling *No standing water *Chamfers and splays					
B. Reinforcement	*Grade of bars and sizes *Number of bars *Spacing of bars and links *Lapping and anchorage *Cover and spacers *Cleanliness from loose rust, oil, etc.					
C. Concrete	*Concrete mix ordered is correct *Trial mix done before used at site					
D. Joint	*Expension joint- 'filler' to be inserted *Properly sealed to avoid leakage *Column-beam joint must be grouted before casting beam top					

Inspection status : ☐ Acceptable ☐ Unacceptable

Comments : _____

Checked by : .....
(TCSB Rep.)
Designation : .....

Signature : .....
Date : .....

Approved by : .....
(Client)
Designation : .....

Signature : .....
Date : .....

TERAJU CONSTRUCTION SDN BHD
No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam
Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan.
Tel : 03-33445670 Fax : 03-33415672

Attachment 7 Effective Date : 01 Oct 2011
REF. NO. : TC/Forms/0007 Version 1
DATE :

POST-CONCRETING CHECKLIST

Project :
Project No. :
Location of Pour :
Structural element : Beam Top / Column Head / Topping Slab*

Pour No. :
Ref. No. :
Date of Inspection :
Date of Casting :

* Delete whichever not applicable

No.	Items to be checked	Acceptabability				Remarks
		TCSB Rep		Client		
		YES	NO	YES	NO	
1	Visibility of cracks					
2	Honeycombing					
3	Bulging					
4	Accuracy of structural elements dimensions					
5	Alignment, verticality, level of structural elements					
6	Any reinforcements exposed?					
7	Upper surface finish roughened of beam top					
8	Curing of concrete kept moist					
9	28 day characteristic of cube strength					
	*(>30 MPa for topping slab, >40 MPa for Beam Top)					
10	Others, if any:					

Remarks:-

Result of cube test:-

7 day characteristic of cube strength is .....

28 day characteristic of cube strength is .....

*Please attach the official result of cube test

Checked by : .....
(TCSB Rep.)
Designation : .....

Signature : .....
Date : .....

Approved by : .....
(Client)
Designation : .....

Signature : .....
Date : .....

	TERAJU CONSTRUCTION SDN BHD No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment 8 Version 1 REF. NO. : TC/Forms/0008 Effective Date : 01 Oct 2011

QA CHECKLIST

PROJECT		DATE	
JOB NO		ATTACH	
BLOCK			
LEVEL			

NO	ELEMENT	DESCRIPTION	ACCEPTABILITY		REMARK
			YES	NO	
1	Column	* Alignment, verticallity, level of elements within tolerence (± 10mm)			
		* Setting out for column position ± 10mm compare to Drawing			
		* All joint and corrugated duct are grouted			
		* Properly finishing of every joint & surface			
2	Beam	* Element marking compare to Drawing			
		* Alignment, verticallity, level of elements within tolerence (± 5mm)			
		* Sealed & grouted of beam end.			
		* Properly finishing of col-beam joint			
3	Hcs & Plank	* Element marking compare to Drawing			
		* Sealed & grouted of joint groove			
		* Proper seating on beam			
4	Landing & Staicase	* Element marking compare to Drawing			
		* Sealed & grouted of element joint			
		* Properly finishing of element joint			
5	Wall	* Alignment, verticallity, level of elements within tolerence (± 10mm)			
		* Setting out for wall position ± 10mm compare to Drawing			
		* All joint and corrugated duct are grouted			
		* Properly finishing of every joint & surface			

Checked by
(TCSB Rep.)

Name :.....
Position :.....

Signature :.....
Date :.....

Approved by
(Client Rep.)

Name :.....
Position :.....

Signature :.....
Date :.....

TERAJU CONSTRUCTION SDN BHD No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment 09	Effective Date : 01 Oct 2011
	REF. NO.	: TC/Forms/0009 Version 1
	NCR NO:	
	ISSUED DATE:	

NON-CONFORMANCE TO INSTALLATION SPECIFICATION REPORT FORM

PROJECT :

TO :

REPORTED BY :

PART A: NON-CONFORMANCE STATEMENT

Attachment : Yes / No

Signature : _____

Name ( )

Date :

PART B: CORRECTIVE/ PREVENTIVE ACTION

Investigation & causes : Attachment : Yes / No

Corrective action : Attachment : Yes / No

Completion date :

Preventive action : Attachment : Yes / No

Completion date :

Signature : _____

Name ( )

Date :

PART C : VERIFICATION

Is corrective / preventive action implemented and effective? Yes / No

Remarks :

Signature : _____

Name ( )

Date :

NCR Cosing Date :

TCSB 656680-D	**TERAJU CONSTRUCTION SDN BHD** No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment 11 REF. NO. : TC/Forms/0011 Version 1 EFFECTIVE DATE : 01 Oct 2011 DATE :

REQUEST FOR INSPECTION

PROJECT : PROJECT NO :

TO : ..... RFI NO. : .....

ATTN : .....

The following works are ready for inspection / will be conducted at ..... (time) on .....(date).

DESCRIPTION WORKS

Location : .....
: .....

Scope of Work : .....
.....
.....

(Note: Please enclose Drawing if necessary).

Requested By	Received By (Client Rep.)
Signature :	Signature :
Name :	Name :
Date/Time :	Date/Time :

INSPECTION STATUS

☐ Inspection acceptable/passed. Works are allowed to proceed.
☐ Remedial works listed below to be completed but no further inspection required.
☐ Remedial works listed below to be completed and re-inspection required.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Signature : .....(Client Rep.) Date : .....

SITE DAILY REPORT

Ref. No: TC/Forms/0012

PROJECT :
DATE :
WORKING HOUR :
PAGE(S) : /

WEATHER RECORD

AM	1	2	3	4	5	6
	7	8	9	10	11	12
PM	1	2	3	4	5	6
	7	8	9	10	11	12

WORKFORCE RECORD Effective Date : 01 Oct 2011 Version 1 Attachment 12

Designation	Qty
Project Manager	
Site Engineer	
Site Supervisor	
Precast Installer	

INSTALLATION RECORD

Location	Element	Marking	Qty	Remarks

SUMMARY

	Order	Delivery	Install
Column			
Beam			
HCS			
Planks			
Wall			

CRANE RECORD

Time	Activity
800	
900	
1000	
1100	
1200	
1300	
1400	
1500	
1600	
1700	
1800	
1900	
2000	
2100	
2200	
2300	
2400	

DELIVERY RECORD

D/O No.	Element/ Material	Qty	At site		Unloading		Remarks
			Arrival	Departed	Started	Completed	

ACTIVITY OUTLINE / PROBLEM(S)

RECORDED BY

CHECK BY

TERAJU CONSTRUCTION SDN BHD No. 28-3-1 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment 13 REF. NO. : TC/Forms/0013 Version 1 Effective Date : 01 Oct 2011

BIWEEKLY REPORT

Project : _____
Period : _____ until _____
Report No. : _____

Work Progress (Please Refer To The Attached Drawings)

Precast Installation Works:

Qty of Column Installed	:	pcs	
Qty of Beam Installed	:	pcs	
Qty of Hcs/SP Installed	:	pcs	(approx: m2)
Qty of Wall Installed	:	pcs	
Qty of STR / LS Installed	:	_____ pcs	
Total	:	_____ pcs	

Precast Grouting Works:

Qty of Column Grouted	:	pcs
Qty of Beam Grouted	:	pcs
Qty of Wall Grouted	:	pcs
Qty of STR / LS Grouted	:	_____ pcs
Total	:	_____ pcs

Shearkey Grouting Works:

Thickness of 265mm Hcs	:	m-run
Thickness of 325mm Hcs	:	_____ m-run
Total	:	_____ m-run

Problems/ Issues Arose Affected Work Progress

Working Hours Record

Description	Qty (no)	Weekly (hrs)	Accumulate (hrs)	Remarks
Manager				
Engineer				
Supervisor				
Manpower				
Crane				
Trailer				

Overall Progress Achieved In This Term	:	pcs	@	%
Accumulate Overall Progress achieved	:	pcs	@	%
Project Duration Elapse	:	day	@	%

Recorded by
Name : _____
Position : _____

TERAJU CONSTRUCTION SDN BHD

No. 28-3A2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13, 40170 Shah Alam, Selangor Darul Ehsan.
Tel : 03-33445670 Fax : 03-33415672

Attachment 14
Version 1
Effective Date : 01 Oct 2011
REF. NO. : TC/Forms/0014

DATE :

CUSTOMER SATISFACTION SURVEY

Project : _____

Name of Client's Rep / SO : _____

Please help us to improve our service to you with your valuable feedbacks

1-Very Bad 2-Bad 3-Average 4-Good 5-Very Good Please tick (✓)

		1	2	3	4	5
1)	Our response to your queries and instruction	☐	☐	☐	☐	☐
2)	Our overall project workmanship quality	☐	☐	☐	☐	☐
3)	Professionalism of our project team	☐	☐	☐	☐	☐
4)	Adequacy of the labour provided by us compared to the contract requirements / schedule	☐	☐	☐	☐	☐
5)	Degree of compliance in respect to materials / fixtures used compared to contract specification	☐	☐	☐	☐	☐
6)	Our safety and housekeeping control	☐	☐	☐	☐	☐
7)	Quality control	☐	☐	☐	☐	☐
8)	Material control	☐	☐	☐	☐	☐
9)	Technical know how	☐	☐	☐	☐	☐
10)	How do you rate our overall performance	☐	☐	☐	☐	☐

11) Do you have any further comments or feedback? Please comment below:

_____

_____

Name : _____

Signature : _____

Position : _____

Date : _____

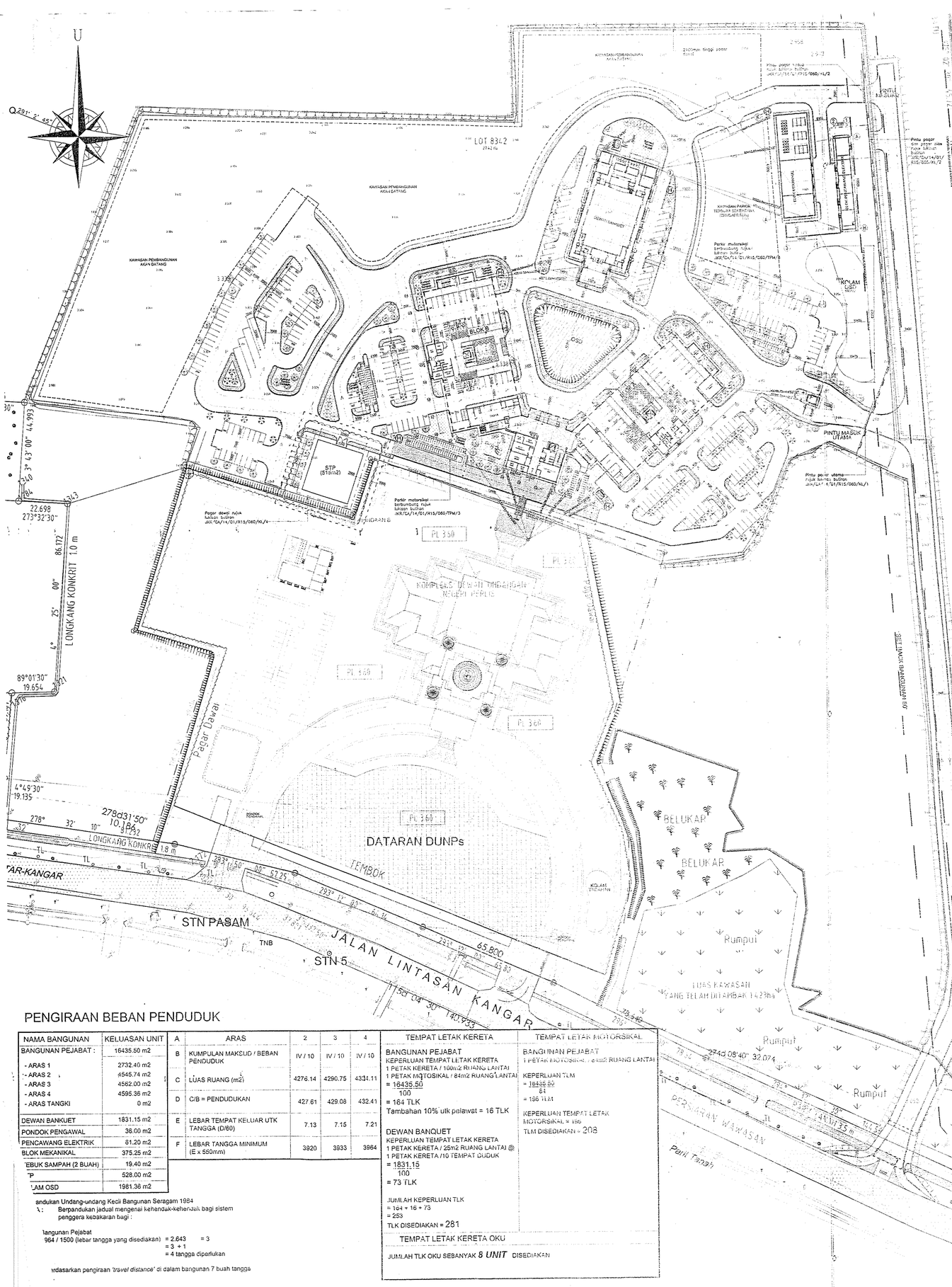
TCSB 656680-D	**SAFETY AND HEALTH PPE RECORD FORM** **TERAJU CONSTRUCTION SDN. BHD.** No. 20-3-2 Jalan Setia Prima (B) U13/B Jalan Setia Alam Seksyen U13 40170 Shah Alam, Selangor Darul Ehsan. Tel : 03-33445670 Fax : 03-33415672	Attachment 46 Reference No.: TC/Forms/0046 Version : 1 Effective Date : 01 Oct 2011

Name	Type of PPE Received	Date Received	Signature

Verified by : _____
Site Engineer

Date : _____

BUILDING PLAN SITE PROJECT



PELAN KUNCI

TIADA SKALA

PELAN LOKASI

TIADA SKALA

JADUAL LANDSKAP LEMBUT KESELURUHAN

SIMBOL	NAMA BOTANI	NAMA BIASA	TINGGI KESELURUHAN (M)	TINGGI BATANG (M)	UKUR LILIT BATANG (MM)	KUANTITI (NOS)	JARAK (M)
POKOK							
	Bucida Molineti	Variegated	Lebih 2.0	1.5	20-50	70	3.0
	Hopea Odorata	Merawan Siput Jantan				90	5.0
	Plumeria Obtusa	Rounded Frangipani / Kemboja Putih	2.4	2.1	50	25	4.0
RENEK							
	Zephyranthes Candida	White Fairy Lily	1.5	0.4			25nos/mps
	Hibiscus Rosa Sinensis	Bunga Raya	3				1.5
	Calathea Lutea	Habana Cigar	1.5	0.8			
	Heliconia Psittacorum						
	Ixora 'Sunkist red'						
RUMPUT							
▨	Axonopus Compressus	Cow Grass	N/A	N/A	N/A	15887m2	Closed turfing

JADUAL LANDSKAP KEJUR KESELURUHAN

SIMBOL	ELEMEN	KEMASAN	WARNA	KUANTITI	ULASAN
▨	Pejalan Kaki	Interlocking Concrete Block	Gray	2112m2	

KEHENDAK-KEHENDAK MENENTANG KEBAKARAN

KOMPLEKS PENTADBIRAN INI ADALAH DALAM KATEGORI IV DAN VII

PELAN TAPAK :

1. Adakan 6 buah pili bomba jenis tiang dua hala dengan pengeluaran air sebanyak 1135 liter seminit bagi setiap pili bomba sepertimana yang ditandakan di dalam pelan
2. Mengadakan 2 lalaan hos berukuran 64mm x 30 meter dan sebatang nozel dari jenis ' Jet & Spray' yang ditempatkan di dalam peti kabinet berhampiran dengan tiap-tiap pili bomba.
3. Pili bomba sedia ada hendaklah dalam keadaan baik.
4. Adakan jalan masuk perkakas bomba (Access Road) dengan kelebaran tidak kurang 6 meter yang boleh menanggung beban 25 tan sepertimana yang ditandakan didalam pelan
5. Jarak antara bangunan hendaklah mematuhi Jadual Ke Enam UBBL 1984.

KEHENDAK KEHENDAK AM :

1. Semua pendawaian elektrik bagi sistem kecemasan hendaklah dalam konduit logam atau daripada kabel yang mempunyai penebatan mineral tahan api. Pemasangannya hendaklah sepanjang kawasan yang paling kurang risiko kebakarannya dan mematuhi UUK 253 UBBL 1984.
2. Semua elemen struktur hendaklah mempunyai tempoh ketahanan api mengikut UBBL 1984.
3. Adakan sistem pengudaraan bagi tangga keselamatan sama ada secara biasa atau mekanikal.
4. Penggunaan gas petroleum cecair (L.P.G) secara 'Bulk Storage' hendaklah mematuhi syarat-syarat penentuan M.S. 830 dan M.S. 930. Sila kemukakan pelan yang lengkap ke Jabatan ini
5. Bagi bangunan yang melebihi 30 meter, semua tangga yang dicadang untuk digunakan sebagai jalan keluar hendaklan dilanjutkan ke paras bumbung untuk memberi akses kepadanya.
6. Semua papan tanda keselamatan kebakaran hendaklah mematuhi M.S. 982 : 1985.
7. Adakan 'Graphic Design Of Floor Plan' berlatarbelakang warna putih yang menunjukkan tangga keselamatan, laluan-laluan keselamatan, jalan-jalan keluar dan kedudukan alat-alat pencegah kebakaran. Penempatannya hendaklah di tempat yang mudah dilihat
8. Sila kemukakan tiga (3) set buku operasi mengikut syarat-syarat Jabatan Bomba dan Penyelamat Malaysia.

KEHENDAK KEHENDAK AKTIF :

1. Adakan sistem unit saluran bantu mula (Hose Reel) mengikut Piawaian Malaysia MS 1489:Part 1:1999 atau mana-mana penentuan yang dibenarkan oleh Jabatan Bomba Penyelamat Malaysia
2. Adakan sistem penggera kebakaran jenis pecah kaca mengikut syarat-syarat penentuan Tatatertib Amalan Piawaian British atau mana-mana penentuan yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia
3. Adakan sistem pengesan haba / asap mengikut syarat-syarat penentuan Tatatertib Amalan Piawaian British atau mana-mana penentuan yang dibenarkan oleh Jabatan Bomba Dan Penyelamat Malaysia
4. Adakan sistem siaraya awam (Public Address System) dan pemasangannya hendaklah menepati kehendak-kehendak Jabatan Bomba Dan Penyelamat Malaysia.
5. Adakan sistem alat pemadam api yang bersesuaian menurut MS 1539: Part 1: 2002 sepertimana yang ditandakan di dalam pelan.
6. Adakan sistem talian terus amaran kebakaran bomba kepada balai bomba terdekat dan pemasangannya hendaklah mematuhi syarat-syarat penentuan Jabatan Bomba dan Penyelamat Malaysia
7. Adakan pemasangan tetap gas mengikut syarat-syarat penentuan NFPA atau mana-mana penentuan yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia sepertimana yang ditandakan di dalam pelan bagi bilik-bilik berikut;
   - a. Bilik alat ubah (transformer)
   - b. Bilik suis bervoltan tinggi
   - c. Bilik janakuasa
   - d. Bilik Elektrik T.E.N.

   Semua pintu-pintu yang menghala ke dalam bilik hendaklah dari jenis TKA 2 jam.
8. Adakan lampu tanda 'KELUAR' yang menggunakan dua kuasa karan sepertimana yang ditandakan di dalam pelan. Lampu-lampu tersebut hendaklah dari jenis yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia.

KEHENDAK KEHENDAK PASIF :

1. Penggunaan siling bangunan hendaklah menepati kehendak-kehendak UBBL 1984 Jadual Kelapan.
2. Semua tangga keselamatan yang ada hendaklah dikepong dengan tembok batu-bata setebal 110mm atau tangga terbuka yang memenuhi kehendak-kehendak UBBL 1984 sepertimana yang ditandakan di dalam pelan
3. Adakan pintu rintangan api satu jam sepertimana yang ditandakan di dalam pelan. Pemasangannya hendaklah tertutup sendiri dan tertutup rapat
4. Adakan dinding pemisahan (Compartment Wall) setebal 112mm / 225mm batu-bata yang dibina sehingga paras bumbung/ lantai sepertimana yang ditandakan di dalam pelan.
5. Dinding bilik sateri yang disediakan merbahaya hendaklah setebal 100mm batu-bata dan pintunya dari jenis rintangan api satu jam dipasang dengan 'Door Closer'.
6. Penggunaan kaca-kaca pada dinding luar bangunan hendaklah dari jenis yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia.
7. Semua bilik penempatan pam bomba dan janakuasa hendaklah dibina dari tembok batu-bata yang tahan rintangan api 2 jam. Pintu pintunya hendaklah dari rintangan api satu jam.
8. Dinding pemisah hendaklah dari jenis batu-bata setebal 200mm jenis yang menanggung beban dan 100mm yang tidak menanggung beban. Dinding ini hendaklah dinaikkan 225mm melebihi paras bumbung mematuhi rekabentuk yang dipersetujui oleh Jabatan Bomba dan Penyelamat Malaysia.
9. Semua dinding pembahagi dalaman hendaklah dari jenis rintangan api 1/2 jam dan dari jenis yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia

PERINGATAN :

1. Segala syarat-syarat yang dikemukakan adalah tertakluk kepada rekabentuk dan kegunaan bangunan serta lokasi bangunan tersebut. Sekiranya sebarang pindaan yang dilakukan ke atas rekabentuk atau kegunaannya seperti yang ditunjukkan di atas pelan maka hendaklah dirujuk ke Jabatan ini untuk dikaji semula
2. Segala pemilihan bahan dan penggunaannya yang berkaitan dengan keselamatan kebakaran bagi projek cadangan serta sistem pencegahan kebakaran hendaklah memenuhi UBBL 1984 dan peraturan-peraturan yang diterima sahaja yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia.
3. Bagi bangunan yang rekabentuknya melebihi 18.5 meter hingga ke lantai penuh yang tertinggi sekali, sesalur-sesalur naik mengikut Undang-undang Kecil 232 hendaklah dipasang sebaik sahaja selepas bangunan itu melebihi tinggi tersebut untuk mengadakan kemudahan-kemudahan mencegah kebakaran dalam masa berbagai peringkat pembinaan
4. Pengesahan pelan ini adalah tidak tertakluk kepada penyimpanan, penggunaan, pemprosesan dan penghasilan bahan berbahaya atau kimia berbahaya. Sekiranya terdapat sebarang penyimpanan, penggunaan, pemprosesan dan penghasilan bahan berbahaya atau kimia berbahaya selepas pelan disahkan maka pelan bangunan tersebut hendaklah dirujuk kembali ke Jabatan ini untuk dikaji semula
5. Pelan lukisan dan pengiraan bagi semua pemasangan tetap hendaklah dikemukakan ke Jabatan Bomba dan Penyelamat Malaysia. Jumlah pelan-pelan yang dikemukakan hendaklah tidak kurang tiga perenggu.

Saya mengakui walaupun apa-apa pelan, lukisan atau kiraan yang telah diperakukan oleh Jabatan Bomba dan Penyelamat Malaysia, tanggungjawab bagi kemungkinan kepada mana-mana bangunan atau sebahagian daripada sesuatu bangunan hendaklah terletak atas orang yang mengemukakan pelan, lukisan atau kiraan itu.

DATIN AR. HJH. MARIANI NOOR BT. HJ. SUHUD
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA
K.P. : 641015-05-5226
L.A.M. : A/M 189

PENGIRAAN BEBAN PENDUDUK

NAMA BANGUNAN	KELUASAN UNIT
BANGUNAN PEJABAT :	16435.50 m2
- ARAS 1	2732.40 m2
- ARAS 2	4545.74 m2
- ARAS 3	4562.00 m2
- ARAS 4	4595.36 m2
- ARAS TANGKI	0 m2
DEWAN BANKUET	1831.15 m2
PONDOK PENGAWAL	36.00 m2
PENCAWANG ELEKTRIK	61.20 m2
BLOK MEKANIKAL	375.25 m2
EBUK SAMPAH (2 BUAH)	19.40 m2
P	528.00 m2
LAM OSD	1981.36 m2

A	ARAS	2	3	4
B	KUMPULAN MAKSUD / BEBAN PENDUDUK	IV / 10	IV / 10	IV / 10
C	LUAS RUANG (m2)	4276.14	4290.75	4334.11
D	C/B = PENDUDUKAN	427.61	429.08	432.41
E	LEBAR TEMPAT KELUAR UTK TANGGA (D/60)	7.13	7.15	7.21
F	LEBAR TANGGA MINIMUM (E x 550mm)	3920	3933	3964

andukan Undang-undang Kecil Bangunan Seragam 1984

\: Berpandukan jadual mengenai kehendak-kehendak bagi sistem penggera kebakaran bagi :

angunan Pejabat

964 / 1500 (lebar tangga yang disediakan) = 2.643 = 3
= 3 + 1
= 4 tangga diperlukan

erdasarkan pengiraan *'travel distance'* di dalam bangunan 7 buah tangga

TEMPAT LETAK KERETA	TEMPAT LETAK MOTORSIKAL
BANGUNAN PEJABAT KEPERLUAN TEMPAT LETAK KERETA 1 PETAK KERETA / 100m2 RUANG LANTAI 1 PETAK MOTOSIKAL / 84m2 RUANG LANTAI = 16435.50 / 100 = 164 TLK Tambahan 10% utk pelawat = 16 TLK DEWAN BANQUET KEPERLUAN TEMPAT LETAK KERETA 1 PETAK KERETA / 25m2 RUANG LANTAI @ 1 PETAK KERETA /10 TEMPAT DUDUK = 1831.15 / 100 = 73 TLK JUMLAH KEPERLUAN TLK = 164 + 16 + 73 = 253 TLK DISEDIAKAN = 281	BANGUNAN PEJABAT 1 PETAK MOTOSIKAL / 84m2 RUANG LANTAI KEPERLUAN TLM = 16435.50 / 84 = 196 TLM KEPERLUAN TEMPAT LETAK MOTORSIKAL = 196 TLM DISEDIAKAN = 208

TEMPAT LETAK KERETA OKU
JUMLAH TLK OKU SEBANYAK ***8 UNIT*** DISEDIAKAN

PELANGGAN

TANDATANGAN & COP
KELULUSAN PELANGGAN

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA
MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK
AR. ZAIRUL AZIDIN BIN BADRI

PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA
DATIN AR. MARIANI NOOR BT. SUHUD

ARKITEK PENGUASA KANAN
MOHAMMAD ISA BIN HUSSAIN (A.M.P)

ARKITEK PENGUASA
PN. NORHAYATI BT OMAR

ARKITEK
MOHAMAD HAZIMIN BIN ISMAIL

NOTA AM

PINDAAN

PETUNJUK	PINDAAN	TARIKH	TANDATANGAN
	PINDAAN A 1. LALUAN MASUK & KELUAR DIPONDOK PENGAWAL DILEBARKAN DARI 5700MM KE 6100MM 2. KAWASAN PEMBANGUNAN AKAN DATANG DIANTARA DEWAN BANQUET DIJADIKAN KAWASAN PARKIR TERBUKA SEMENTARA 3. BUKAAN JALAN BARU KE KAWASAN PEMBANGUNAN AKAN DATANG		
	PINDAAN B 1. PERUBAHAN LOKASI STP BERDEKATAN DENGAN KOMPLEKS SUK – BLOK B		

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

PELAN KUNCI
PELAN LOKASI
PELAN TAPAK

DILUKIS: SYAHIRA
DISEMAK: PN. SHARIFAH
SKALA: 1 : 1000
TARIKH: SEPTEMBER 2017

NO. LUKISAN
JKR/CA/14/01/R15/060/2

PINDAAN

A	B						

STATUS LUKISAN
COP & TARIKH
LUKISAN PEMBINAAN

U

KAWASAN PEMBANGUNAN AKAN DATANG

LOT 8342
27.42 Ha

2100mm tinggi pagar dawai

Pintu pagar kedua rujuk lukisan butiran JKR/CA/14/01/R15/060/KL/2

PINTU MASUK 2

Pintu pagar dan pagar hias rujuk lukisan butiran JKR/CA/14/01/R15/060/KL/2

KAWASAN PARKIR TERBUKA SEMENTARA (CRUSHER RUN)

BLOK MEKANIKAL

BLOK PENCAWANG ELEKTRIK

Parkir motorsikal berbumbung rujuk lukisan butiran JKR/CA/14/01/R15/060/TPM/5

KOLAM OSD 1007M2

DEWAN BANQUET

BLOK B

BLOK A

OSD

TASKA

STP (515m2)

PINDAAN B

Parkir motorsikal berbumbung rujuk lukisan butiran JKR/CA/14/01/R15/060/TPM/3

Pagar dawai rujuk lukisan butiran JKR/CA/14/01/R15/060/KL/4

PAGAR ZINK

CADANGAN PINTU MASUK KE OSD

PL 3.60

PL 3.60

KOMPLEKS DEWAN UNDANGAN NEGERI PERLIS

pagar dawai

PINTU MASUK UTAMA

Pintu pagar utama rujuk lukisan butiran JKR/CA/14/01/R15/060/KL/1

JALAN BATU

PELANGGAN

TANDATANGAN & COP KELULUSAN PELANGGAN

JKR

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK	
AR. ZAIRUL AZIDIN BIN BADRI	
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA	
DATIN AR. MARIANI NOOR BT. SUHUD	
ARKITEK PENGUASA KANAN	
MOHAMMAD ISA BIN HUSSAIN (A.M.P)	
ARKITEK PENGUASA	
PNL NORHAYATI BT OMAR	
ARKITEK	
MOHAMAD HAZIMIN BIN ISMAIL	

NOTA AM

PINDAAN

PETUNJUK	PINDAAN	TARIKH	TANDATANGAN
	PINDAAN A 1. LALUAN MASUK & KELUAR DIPONDOK PENGAWAL DILEBARKAN DARI 5700MM KE 6100MM 2. KAWASAN PEMBANGUNAN AKAN DATANG DIANTARA DEWAN BANQUET DIJADIKAN KAWASAN PARKIR TERBUKA SEMENTARA 3. BUKAAN JALAN BARU KE KAWASAN PEMBANGUNAN AKAN DATANG		
	PINDAAN B 1. PERUBAHAN LOKASI STP BERDEKATAN DENGAN KOMPLEKS SUK – BLOK B		

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

PELAN TAPAK

DILUKIS	DISEMAK
SYAHIRA	PN SHARIFAH
UKURAN	TARIKH
1 : 500	SEPTEMBER 2017

NO. LUKISAN

JKR/CA/14/01/R15/060/3

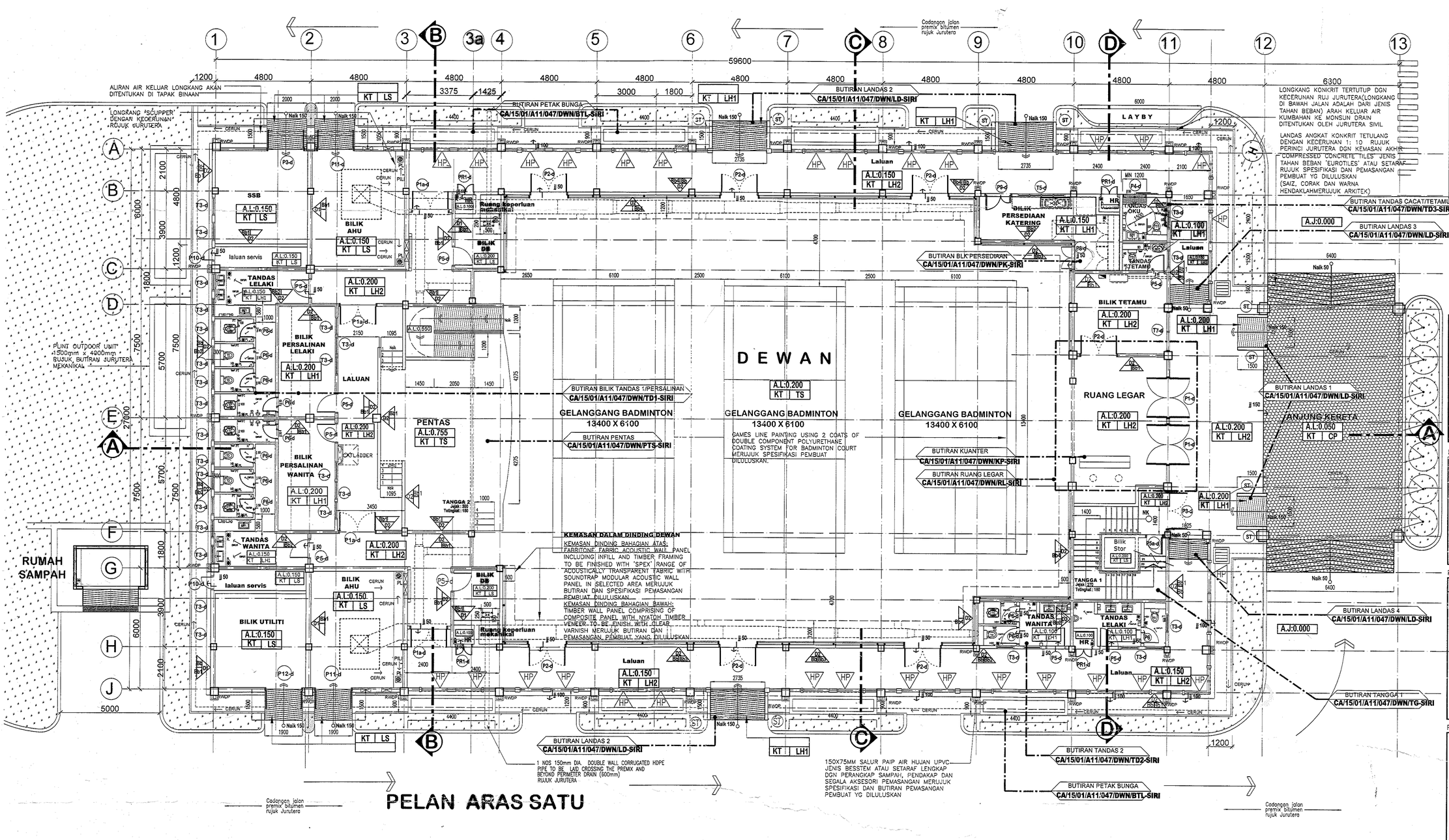
PINDAAN

A | B

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



SPESIFIKASI-SIMBOL & KOD

LANTAI

STRUKTUR | ARAS LANTAI: KT = SHP, PK = KEMASAN

KOD	SPESIFIKASI STRUKTUR LANTAI
KT	100mm tbl KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.

KOD	SPESIFIKASI KEMASAN LANTAI
CP	200X200X8MM 'PRIME PAVER HEAVY DUTY CONCRETE BASED' ATAU SETARAF YANG DILULUSKAN DIPASANG DI ATAS 'MORTAR BEDDING, DAN MENGERUH LANDAI KE LONGKANG MERUJUK SPESIFIKASI DAN BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN JURUTERA. SAIZ, CORAK DAN WARNA MERUJUK KELULUSAN ARKITEK.
LH1	300x300x8mm JUBIN HOMOGENEOUS PERMUKAAN TIDAK LICIN (MATTE) GRED A DIATAS 20MM. TBL.LEPEKAN SIMEN DGN 100mm JUBIN KAMBI, WARNA DAN CORAK DGN KELULUSAN ARKITEK.
LH2	300x300X8mm JUBIN HOMOGENEOUS 'UNGLAZED' LKP DGN 100mm KAMBI, WARNA, CORAK BERSERTA BORDER YANG DILULUSKAN ARKITEK .
TS	'AIR-THRUST' PNEUMATIC TIMBER FLOORING SYS. COMPRISING OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING WITH 2 LAYERS OF 12MM THK. WBP PLYWOOD,4.3MM THK. 'AIR-THRUST' GENUINE AIR-CELLS NATURAL RUBBER PADS AND A LAYER OF VAPOUR PROOF MEMBRANE AND C/W SANDING AND FINISHING WITH 1 COAT OF STRATA BASE AND 2 COATS OF STRATA SP. A WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO FLOOR ATAU SETARAF YANG DILULUSKAN ARKITEK
TS1	'PERSWOOD' TIMBER FLOORING SYSTEM. MATERIALS COMPRISES OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING AND WITH 1 LAYER 12MM WBP PLYWOOD, C/W SANDING AND FINISHING WITH 1 COAT STRATE BASE AND 2 COATS STRATA SP WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO TREAD OF 255MM WIDE AND RISER OF 150MM HIGH ATAU SETARAF YANG DILULUSKAN ARKITEK
LS	20MM TBL LEPAKAN SIMEN / KEMASAN AKHIR CAT EPOXY ATAU SETARAF TANG DILULUSKAN DI MSB DAN DB

NOTA :
1) LAPISAN KALIS LEMBAB DIANTARA LANTAI KONKRIT DAN 'HARDCORE' ADALAH DARI JENIS 'TWO-PART POLYSULPHIDE' ATAU SETARAF YG DILULUSKAN JURUTERA
2) SEMUA JUBIN DILENGKAPI DGN 'MATCHING BORDER TILES'/'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

DINDING

KEMASAN LUAR | STRUKTUR | KEMASAN DALAM

KOD	SPESIFIKASI STRUKTUR DINDING
D1	230mm tbl DINDING KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
D2	125mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR
D3	100mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR

KOD	SPESIFIKASI KEMASAN LUAR DINDING
Bb	1 COAT JOTASHIELD PRIMER 07 'WATER BASE ALKALI RESISTING,PURE ACRYLIC WALL PRIMER SEALER. 2 COAT JOTASHIELD 100% ACRYLIC BASE EXTERIOR FINISH 1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMERSEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.

KOD	SPESIFIKASI KEMASAN DALAM DINDING
Bb1	1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMER SEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.
Bb2	200X200X8MM TBL. JUBIN SERAMIK GILAP SETINGGI ARAS SILING LENGKAP DGN JUBIN BORDER (WARNA & CORAK DITENTUKAN OLEH ARKITEK)
Bb3	FABRITONE FABRIC ACOUSTIC WALL PANEL INCLUDING INFILL AND TIMBER FRAMING TO BE FINISHED WITH 'SPEX' RANGE OF ACOUSTICALLY TRANSPARENT FABRIC WITH SOUNDTRAP MODULAR ACOUSTIC WALL PANEL IN SELECTED AREA MERUJUK BUTIRAN DAN SPESIFIKASI PEMASANGAN PEMBUAT DILULUSKAN.
Bb4	TIMBER WALL PANEL COMPRISING OF COMPOSITE PANEL WITH NYATOH TIMBER VENEER TO BE FINISH WITH CLEAR VARNISH MERUJUK BUTIRAN DAN PEMASANGAN PEMBUAT YANG DILULUSKAN.

NOTA :
2) SEMUA JUBIN DILENGKAPI DGN 'MATCHING BORDER TILES'/'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

BUMBUNG

STRUKTUR | KEMASAN

KOD	SPESIFIKASI STRUKTUR BUMBUNG
B1	KERANGKA KELULI LENGKAP DGN SOUND INSULATION DAN VAPOUR BARRIER. RUJUK BUTIRAN JURUTERA.
B2	BUMBUNG RATA KONKRIT TETULANG LENGKAP LAPISAN KALIS AIR RUJUK BUTIRAN JURUTERA.

KOD	KEMASAN BUMBUNG
Gc	"TERREAL ROMANE EVO" CLAY ROOF TILES, 12 PCS/M² COMPLETE WITH FULL ACCESSORIES TERREAL COOLMAX, CF2A—FR DESCRIBED IN (GLAZED COLOUR) CODE: MS TILES ARE TO BE ON LIGHT WEIGHT STEEL STRUCTURE SYSTEM RECOMMENDED AND APPROVED BY STRUCTURAL ENGINEER, ALL IN STRICT ACCORDANCE TO MANUFACTURER'S SPECIFICATION AND RECOMMENDATION

NOTA :
1)SEMUA PERMUKAAN BUMBUNG RATA DAN TALANG KONKRIT HENDAKLAH DILETAKAN DGN KEPINGAN KALIS TIRIS DARI JENIS 'ELASTOMERIC LIQUID MEMBRANE' YG DILULUSKAN OLEH JURUTERA.
2)PEMASANGAN MESTILAH MENGIKUT SPESIFIKASI DAN ARAHAN PENGELUAR YANG DILULUSKAN

KELENGKAPAN PINTU

KOMPONEN & JENIS PINTU (P)

KOD	KOMPONEN PINTU/SPESIFIKASI
P1-d	2400 x 2100 X 10MM PINTU PANEL KACA JERNIH DUA HALA (2 DAUN)
P1a-d	2400 x 2100 PINTU PANEL KACA JERNIH dan 2000 x 600 ('TOP HUNG')
P2-d	2400 x 1800 PINTU PANEL KAYU BERHIAS (2 DAUN)
P3-d	1900 x 2100 PINTU KAYU RATA (2 DAUN)
P4-d	1200 x 2100 PINTU KAYU RATA (1DAUN) JENIS GELANGSAR (TRACK DI ATAS)
P5-d	900 x 2100 PINTU KAYU RATA DAN 900 x 600 ('TOP HUNG')
P5a-d	900 x 2100 PINTU KAYU RATA (1 DAUN)
P6-d	750 x 2100 PINTU RATA UPVC
P8-d	1200 x 2100 PINTU KAYU RATA (2 DAUN)
P9-d	1300 x 2100 PINTU KAYU RATA DAN 1300 x 600 ('TOP HUNG')
P10-d	700 x 2100 PINTU KAYU RATA DGN RAM TETAP DI BAWAH
P11-d	1800 x 2100 PINTU AKUSTIK YANG DILULUSKAN
P12-d	1800 x 2100 'COMPOSITE DOOR WITH ALUMINIUM ANTI VERMIN NETTING FIXED INSIDE' YG DILULUSKAN
PR1-d	900 x 2100 PINTU RINTANGAN API 1 JAM 2 DAUN
PR2-d	1800 x 2100 PINTU RINTANGAN API 2 JAM 2 DAUN

NOTA :
SEMUA PINTU HENDAKLAH BERBINGKAI KELULI BERONGGA RUJUK BUTIRAN PENGELUAR DGN KELULUSAN ARKITEK.
SEMUA PINTU DILENGKAPI DGN ARCHITRAVE YG DILULUSKAN

KELENGKAPAN TINGKAP

KOMPONEN & JENIS TINGKAP (T)

KOD	KOMPONEN TINGKAP/SPESIFIKASI
T1-c	3500MMX800MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2-d	2500MMX700MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS)KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2a-d	2000MMX1200MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T3-d	600MMX900MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS)KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T4-d	600MMX2400MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T5-d	1800MMX2425MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T6-d	2750MMX1400MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T7-d	2000MMX2000MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)

KETERANGAN SIMBOL

KOD	SPESIFIKASI KOMPONEN
W/	RAM TETAP ALUMINIUM JENIS 'DML 85L/4V SUN LOUVERS' WITH VERTICAL CARRIER — HENDAKLAH MENGIKUT SPESIFIKASI PENGELUAR ATAU SETARA DGN. KELULUSAN ARKITEK
RT	1250 TINGGI SUSUR TANGAN BATU BATA DGN KEMASAN LUAR 'SPRAY GRANITE' JENIS ELEGANSTONE MS—336 DGN 50MM SUSUR TANGAN KELULI SEDERHANA KERAS ATAU SETARA YG DILULUSKAN ARKITEK
ST	50MMX900MM TINGGI SUSUR TANGAN KELULI SEDERHANA KERAS DENGAN SAMBUNGAN KOMPALAN
RWDP	150 x 75mm SALUR TURUN AIR HUJAN JENIS UPVC
H	150 x 150mm PERANGKAP LANTAI KELULI TAHAN KARAT ANTI ROACH
P	PINTU — AL ARAS LANTAI
T	TINGKAP — AJ ARAS JALAN
OKU	OKU — AT ARAS TANAH
TAJUK BUTIRAN NO.RUJUKAN LUKISAN	RUJUKAN BUTIRAN

NOTA :
PEMASANGAN KEMASAN HENDAKLAH MENDAPAT KELULUSAN ARKITEK SEBELUM PEMASANGAN DENGAN DISERTAKAN BERSAMA
1) 'SHOP DRWG' DARI PEMBEKAL
2) MH—KEDUDUKAN LURANG RUJUK LUKISAN JURUTERA UNTUK KEDUDUKAN SEBENAR

KEPERLUAN BOMBA

KOD	ALAT—ALAT PENCEGAH KEBAKARAN
EL	LAMPU KECEMASAN
◁	DRY POWDER EXTINGUISHER 9KG ABC(DP)
◁	CARBON DIOXIDE EXTINGUISHER 2.3 KG (CO2)
⊗	LOCENG KECEMASAN
HR	GEGELONG HOSE
K	KELUAR
PD	PINTU RINTANGAN API
H	HYDRANT DUA HALA
FMS	FIREMEN ISOLATION SWITCH

NOTA AM

- SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA
- SEMUA KERJA—KERJA STRUKTUR, SILA RUJUK LUKISAN STRUKTUR
- SEMUA KERJA—KERJA SIVIL, SILA RUJUK LUKISAN SIVIL
- SEMUA KERJA—KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN, SILA RUJUK LUKISAN BEKALAN AIR.
- SEMUA KERJA—KERJA MEKANIKAL, SILA RUJUK LUKISAN MEKANIKAL
- SEMUA KERJA—KERJA ELEKTRIKAL, SILA RUJUK LUKISAN ELEKTRIKAL

PELANGGAN

TANDATANGAN & COP KELULUSAN PELANGGAN

JKR

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK	
Ar. ZAIRUL AZIDIN BIN BADRI	
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA	
Ar. HJH. MARIANI NOOR BT. HJ. SUHUD	
ARKITEK PENGUASA KANAN	
MOHAMMAD ISA BIN HUSSAIN (A.M.P)	
ARKITEK PENGUASA	
NARIMA HANIM BT. ZAINAL ABIDIN	
ARKITEK	
MOHAMAD HAZIMIN BIN ISMAIL	

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET
- PELAN LANTAI ARAS SATU

DILUKIS	DISEMAK
Assory	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

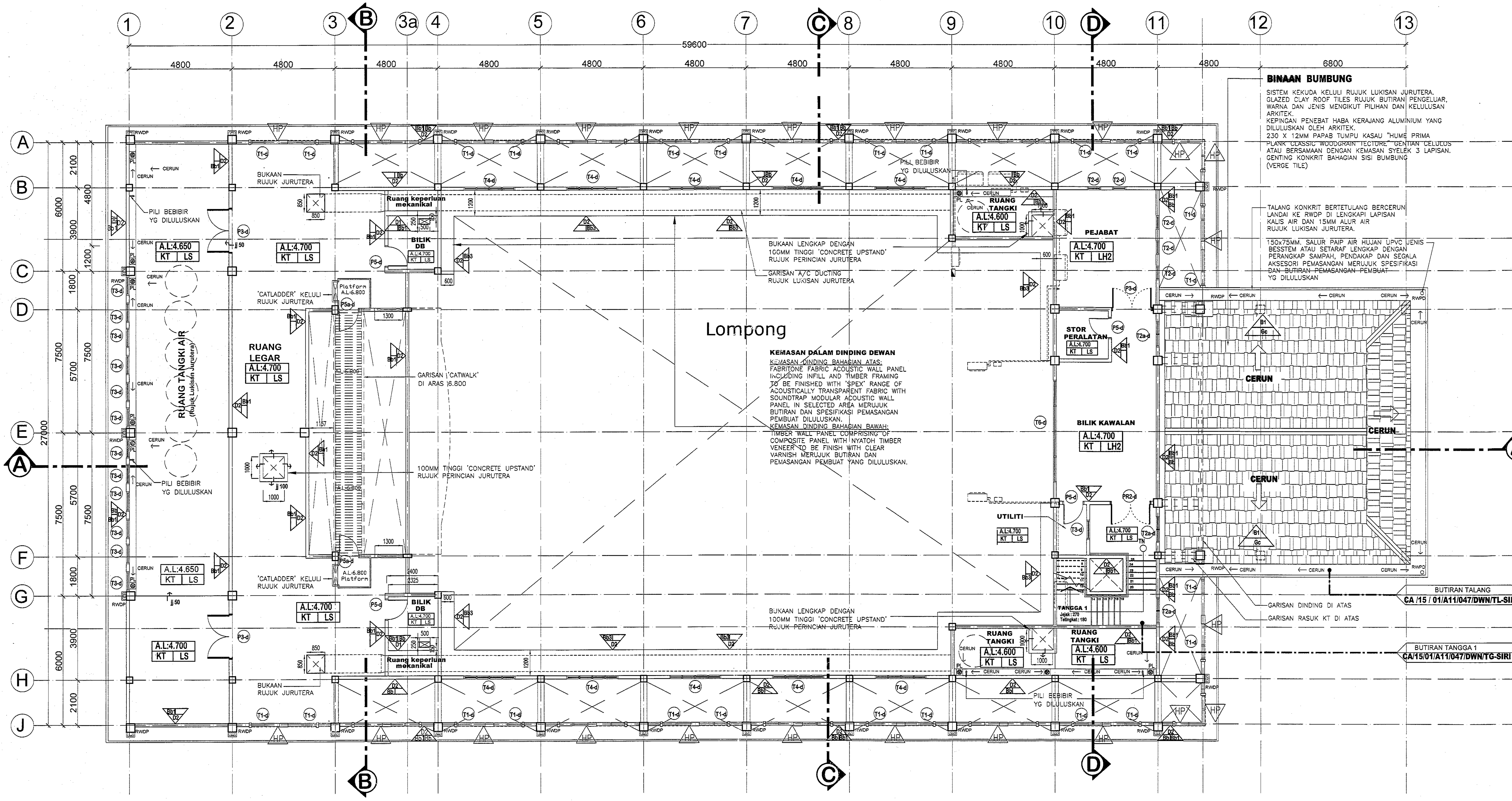
JKR/CA/14/01/R15/060/DB/1

PINDAAN

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



PELAN ARAS DUA

SPESIFIKASI-SIMBOL & KOD

LANTAI

KOD	SPESIFIKASI STRUKTUR LANTAI
KT	100mm tbl KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
KOD	**SPESIFIKASI KEMASAN LANTAI**
CP	200X200X80MM 'PRIME PAVER HEAVY DUTY CONCRETE BASED' ATAU SETARAF YANG DILULUSKAN DIPASANG DI ATAS 'MORTAR BEDDING, DAN MENCERUN LANDAI KE LONGKANG MERUJUK SPESIFIKASI DAN BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN JURUTERA. SAIZ, CORAK DAN WARNA MERUJUK KELULUSAN ARKITEK.
LH1	300x300X8mm JUBIN HOMOGENEOUS PERMUKAAN TIDAK LICIN (MATTE) GRED A DIATAS 20MM. TBL.LEPEKAN SIMEN DGN 100mm JUBIN KAMBI, WARNA DAN CORAK DGN KELULUSAN ARKITEK
LH2	300x300X8mm JUBIN HOMOGENEOUS 'UNGLAZED' LKP DGN 100mm KAMBI, WARNA, CORAK BERSERTA BORDER YANG DILULUSKAN ARKITEK
TS	'AIR-THRUST' PNEUMATIC TIMBER FLOORING SYS. COMPRISING OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING WITH 2 LAYERS OF 12MM THK. WBP PLYWOOD,4.3MM THK. 'AIR-THRUST' GENUINE AIR-CELLS NATURAL RUBBER PADS AND A LAYER OF VAPOUR PROOF MEMBRANE AND C/W SANDING AND FINISHING WITH 1 COAT OF STRATE BASE AND 2 COATS OF STRATA SP, A WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO FLOOR ATAU SETARAF YANG DILULUSKAN ARKITEK
TS1	'PERSWOOD' TIMBER FLOORING SYSTEM, MATERIALS COMPRISES OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING AND WITH 1 LAYER 12MM WBP PLYWOOD, C/W SANDING AND FINISHING WITH 1 COAT STRATE BASE AND 2 COATS STRATA SP WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO TREAD OF 255MM WIDE AND RISER OF 150MM HIGH ATAU SETARAF YANG DILULUSKAN ARKITEK
LS	20MM TBL LEPAAN SIMEN (KEMASAN AKHIR CAT EPOXY ATAU SETARAF TANG DILULUSKAN DI MSB DAN DB

NOTA :
1) LAPISAN KALIS LEMBAB DIANTARA LANTAI KONKRIT DAN 'HARDCORE' ADALAH DARI JENIS 'TWO-PART POLYSULPHIDE' ATAU SETARAF YG DILULUSKAN JURUTERA
2) SEMUA JUBIN DILENGKAPI DGN 'MATCHING BORDER TILES'/ 'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

DINDING

KOD	SPESIFIKASI STRUKTUR DINDING
D1	230mm tbl DINDING KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
D2	125mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR
D3	100mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR
KOD	**SPESIFIKASI KEMASAN LUAR DINDING**
Bb	1 COAT JOTASHIELD PRIMER 07 'WATER BASE ALKALI RESISTING,PURE ACRYLIC WALL PRIMER SEALER. 2 COAT JOTASHIELD 100% ACRYLIC BASE EXTERIOR FINISH 1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMERSEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.

KOD	SPESIFIKASI KEMASAN DALAM DINDING
Bb1	1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMER SEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.
Bb2	200X200X6MM TBL. JUBIN SERAMIK GILAP SETINGGI ARAS SILING LENGKAP DGN JUBIN BORDER (WARNA & CORAK DITENTUKAN OLEH ARKITEK)
Bb3	FABRITONE FABRIC ACOUSTIC WALL PANEL INCLUDING I NFILL AND TIMBER FRAMING TO BE FINISHED WITH 'SPEX' RANGE OF ACOUSTICALLY TRANSPARENT FABRIC WITH SOUNDTRAP MODULAR ACOUSTIC WALL PANEL IN SELECTED AREA MERUJUK BUTIRAN DAN SPESIFIKASI PEMASANGAN PEMBUAT DILULUSKAN.
Bb4	TIMBER WALL PANEL COMPRISING OF COMPOSITE PANEL WITH NYATOH TIMBER VENEER TO BE FINISH WITH CLEAR VARNISH MERUJUK BUTIRAN DAN PEMASANGAN PEMBUAT YANG DILULUSKAN.

NOTA :
2) SEMUA JUBIN DILENGKAPI DGN MATCHING BORDER TILES'/'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

BUMBUNG

KOD	SPESIFIKASI STRUKTUR BUMBUNG
B1	KERANGKA KELULI LENGKAP DGN SOUND INSULATION DAN VAPOUR BARRIER. RUJUK BUTIRAN JURUTERA.
B2	BUMBUNG RATA KONKRIT TETULANG LENGKAP LAPISAN KALIS AIR RUJUK BUTIRAN JURUTERA.
KOD	**KEMASAN BUMBUNG**
Gc	"TERREAL ROMANE EVO" CLAY ROOF TILES, 12 PCS/M² COMPLETE WITH FULL ACCESSORIES TERREAL COOLMAX, CF2A-FR DESCRIBED IN (GLAZED COLOUR) CODE: MG TILES ARE TO BE ON LIGHT WEIGHT STEEL STRUCTURE SYSTEM RECOMMENDED AND APPROVED BY STRUCTURAL ENGINEER, ALL IN STRICT ACCORDANCE TO MANUFACTURER'S SPECIFICATION AND RECOMMENDATION

NOTA :
1)SEMUA PERMUKAAN BUMBUNG RATA DAN TALANG KONKRIT HENDAKLAH DILETAKAN DGN KEPINGAN KALIS TIRIS DARI JENIS 'ELASTOMERIC LIQUID MEMBRANE' YG DILULUSKAN OLEH JURUTERA.
2)PEMASANGAN MESTILAH MENGIKUT SPESIFIKASI DAN ARAHAN PENGELUAR YANG DILULUSKAN

KELENGKAPAN PINTU

KOMPONEN & JENIS PINTU — (P)

KOD	KOMPONEN PINTU/SPESIFIKASI
P1-d	2400 x 2100 X 10MM PINTU PANEL KACA JERNIH DUA HALA (2 DAUN)
P1a-d	2400 x 2100 PINTU PANEL KACA JERNIH dan 2000 x 600 ('TOP HUNG')
P2-d	2400 x 1800 PINTU PANEL KAYU BERHIAS (2 DAUN)
P3-d	1900 x 2100 PINTU KAYU RATA (2 DAUN)
P4-d	1200 x 2100 PINTU KAYU RATA (1DAUN) JENIS GELANGSAR (TRACK DI ATAS)
P5-d	900 x 2100 PINTU KAYU RATA DAN 900 x 600 ('TOP HUNG')
P5a-d	900 x 2100 PINTU KAYU RATA (1 DAUN)
P6-d	750 x 2100 PINTU RATA UPVC
P8-d	1200 x 2100 PINTU KAYU RATA (2 DAUN)
P9-d	1300 x 2100 PINTU KAYU RATA DAN 1300 X 600 ('TOP HUNG')
P10-d	700 x 2100 PINTU KAYU RATA DGN RAM TETAP DI BAWAH
P11-d	1800 x 2100 PINTU AKUSTIK YANG DILULUSKAN
P12-d	1800 x 2100 'COMPOSITE DOOR WITH ALUMINIUM ANTI VERMIN NETTING FIXED INSIDE' YG DILULUSKAN
PR1-d	900 x 2100 PINTU RINTANGAN API 1 JAM 2 DAUN
PR2-d	1800 x 2100 PINTU RINTANGAN API 2 JAM 2 DAUN

NOTA :
SEMUA PINTU HENDAKLAH BERBINGKAI KELULI BERONGGA RUJUK BUTIRAN PENGELUAR DGN KELULUSAN ARKITEK.
SEMUA PINTU DILENGKAPI DGN ARCHITRAVE YG DILULUSKAN

KELENGKAPAN TINGKAP

KOMPONEN & JENIS TINGKAP — (T)

KOD	KOMPONEN TINGKAP/SPESIFIKASI
T1-d	3500MMX800MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2-d	2500MMX700MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS)KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2a-d	2000MMX1200MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T3-d	600MMX900MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T4-d	600MMX2400MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T5-d	1800MMX2425MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T6-d	2750MMX1400MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T7-d	2000MMX2000MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)

KETERANGAN SIMBOL

KOD	SPESIFIKASI KOMPONEN		
HP	RAM TETAP ALUMINIUM JENIS 'DML 85L/4V SUN LOUVERS' WITH VERTICAL CARRIER – HENDAKLAH MENGIKUT SPESIFIKASI PENGELUAR ATAU SETARA DGN. KELULUSAN ARKITEK		
ST	1250 TINGGI SUSUR TANGAN BATU BATA DGN KEMASAN LUAR 'SPRAY GRANITE' JENIS ELEGANSTONE MS-336 DGN 50MM SUSUR TANGAN KELULI SEDERHANA KERAS ATAU SETARA YG DILULUSKAN ARKITEK		
ST1	50MMX900MM TINGGI SUSUR TANGAN KELULI SEDERHANA KERAS DENGAN SAMBUNGAN KIMPALAN		
RWDP	150 x 75mm SALUR TURUN AIR HUJAN JENIS UPVC		
PL	150 x 150mm PERANGKAP LANTAI KELULI TAHAN KARAT ANTI ROACH		
P	PINTU	AL	ARAS LANTAI
T	TINGKAP	AJ	ARAS JALAN
(OKU symbol)	OKU	AT	ARAS TANAH
TAJUK BUTIRAN / NO.RUJUKAN LUKISAN	RUJUKAN BUTIRAN		

NOTA :
PEMASANGAN KEMASAN HENDAKLAH MENDAPAT KELULUSAN ARKITEK SEBELUM PEMASANGAN DENGAN DISERTAKAN BERSAMA
1) 'SHOP DRWG' DARI PEMBEKAL
2) MH-KEDUDUKAN LURANG RUJUK LUKISAN JURUTERA UNTUK KEDUDUKAN SEBENAR

KEPERLUAN BOMBA

KOD	ALAT-ALAT PENCEGAH KEBAKARAN
EL	LAMPU KECEMASAN
◁	DRY POWDER EXTINGUISHER 9KG ABC(DP)
◁	CARBON DIOXIDE EXTINGUISHER 2.3 KG (CO2)
⊗	LOCENG KECEMASAN
HR	GEGELONG HOSE
K	KELUAR
PR	PINTU RINTANGAN API
H	HYDRANT DUA HALA
FMS	FIREMEN ISOLATION SWITCH

NOTA AM

- SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA
- SEMUA KERJA-KERJA STRUKTUR, SILA RUJUK LUKISAN STRUKTUR
- SEMUA KERJA-KERJA SIVIL, SILA RUJUK LUKISAN SIVIL
- SEMUA KERJA-KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN, SILA RUJUK LUKISAN BEKALAN AIR.
- SEMUA KERJA-KERJA MEKANIKAL, SILA RUJUK LUKISAN MEKANIKAL.
- SEMUA KERJA-KERJA ELEKTRIKAL, SILA RUJUK LUKISAN ELEKTRIKAL.

PELANGGAN

TANDATANGAN & COP
KELULUSAN PELANGGAN

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA
MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK	Ar. ZAIRUL AZIDIN BIN BADRI
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA	Ar. HJH. MARIANI NOOR BT. HJ. SUHUD
ARKITEK PENGUASA KANAN	MOHAMMAD ISA BIN HUSSAIN (A.M.P)
ARKITEK PENGUASA	NARIMA HANIM BT. ZAINAL ABIDIN
ARKITEK	MOHAMAD HAZIMIN BIN ISMAIL

NOTA AM

1. KONTRAKTOR ADALAH DIPERTANGGUNGJAWABKAN UNTUK MENYEMAK DAN MENENTUKAN KESEMUA UKURAN DI TAPAK BINA MENGIKUT DIMENSI YANG ADA DIDALAM LUKISAN SEBELUM MENJALANKAN SEBARANG KERJA. AKITEK HENDAKLAH DIMAKLUMKAN DENGAN SEGERA JIKA TERDAPAT SEBARANG PERBEZAAN UKURAN.

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET
- PELAN LANTAI ARAS DUA

DILUKIS	DISEMAK
Assory	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

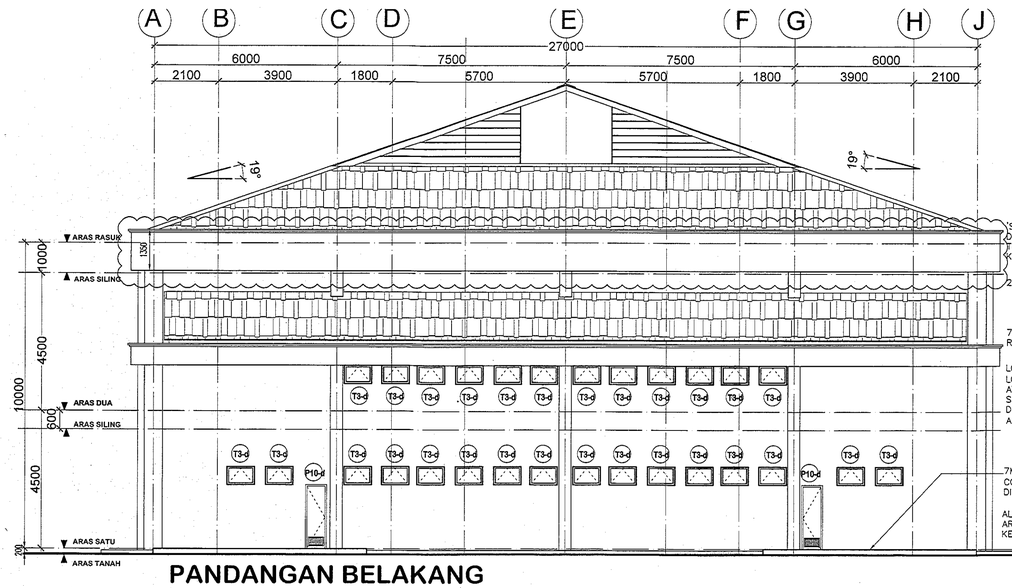
JKR/CA/14/01/R15/060/DB/2

PINDAAN

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



PANDANGAN BELAKANG

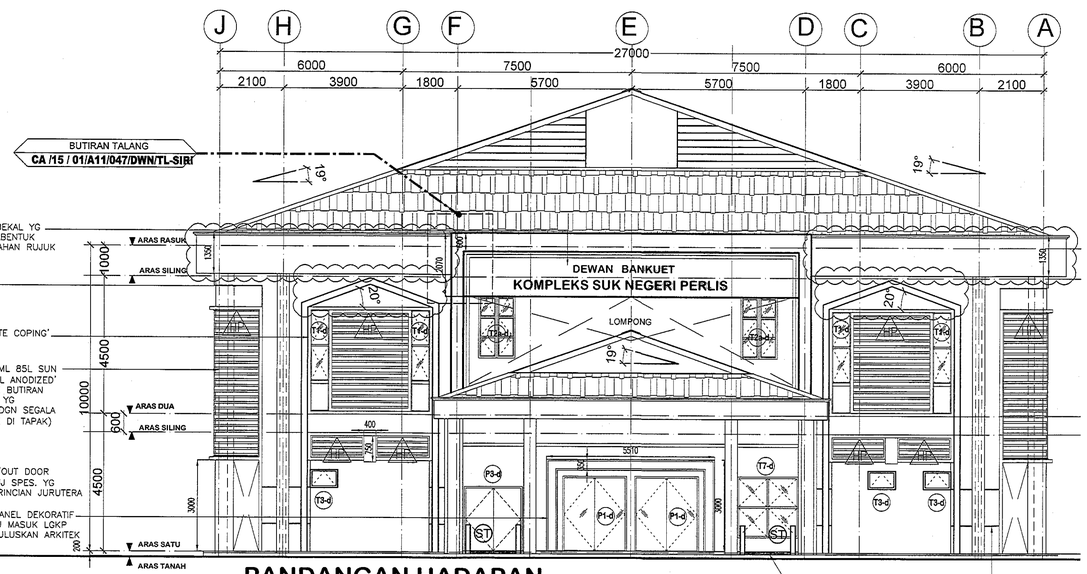
SIGNAGE' RUJUK PEMBEKAL YG DILULUSKAN DGN REKABENTUK TULISAN,WARNA DAN BAHAN RUJUK KELULUSAN ARKITEK.

25MM 'GROOVE LINES'

75MM LEBAR 'CONCRETE COPING' RUJUK JURUTERA

LOUVERS ALUMINIUM DML 85L SUN LOUVERS JENIS'NATURAL ANODIZED' ATAU SETARA MERUJUK BUTIRAN SPESIFIKASI PEMBUAT YG DILULUSKAN LENGKAP DGN SEGALA AKSESORI (SAIZ RUJUK DI TAPAK)

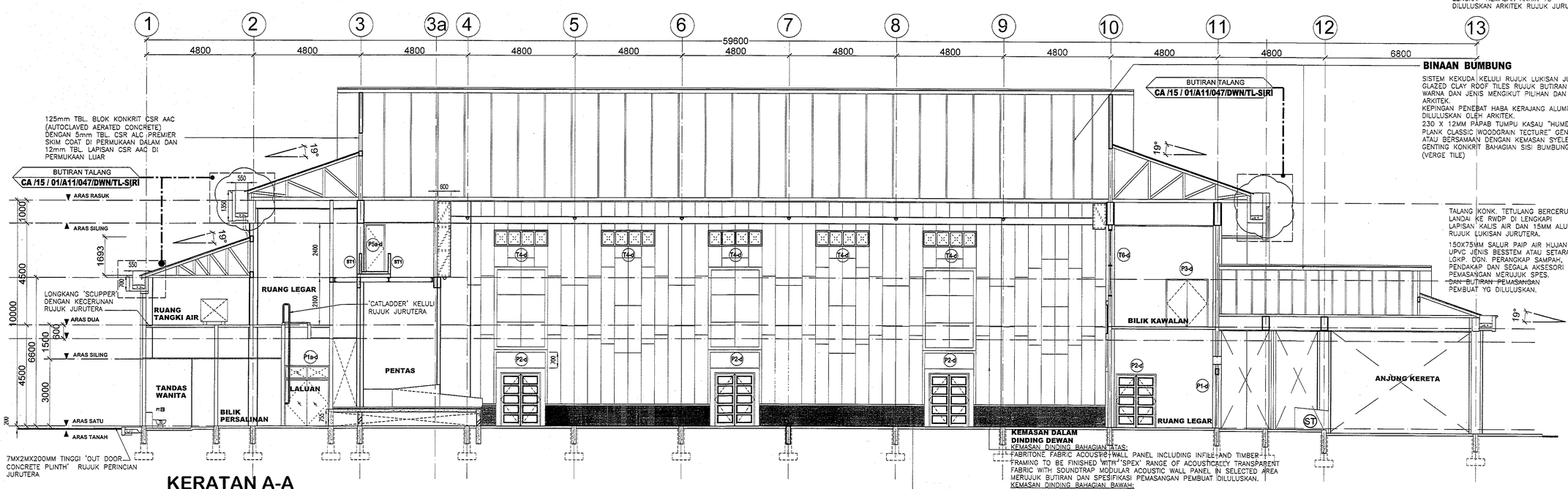
7MX2MX200MM TINGGI 'OUT DOOR CONCRETE PLINTH' RUJUK PERINCIAN JURUTERA



PANDANGAN HADAPAN

25MM 'GROOVE LINE'

LANDAS ANGKAT KONKRIT TETULANG LENGKAP KEMASAN AKHIR YG DILULUSKAN ARKITEK RUJUK JURUTERA



KERATAN A-A

BINAAN BUMBUNG

SISTEM KEKUDA KELULI RUJUK LUKISAN JURUTERA.
GLAZED CLAY ROOF TILES RUJUK BUTIRAN PENGELUAR, WARNA DAN JENIS MENGIKUT PILIHAN DAN KELULUSAN ARKITEK.
KERINGAN PENEBAT HABA KERAJANG ALUMINIUM YANG DILULUSKAN OLEH ARKITEK.
230 X 12MM PAPAB TUMPU KASAU "HUME PRIMA PLANK CLASSIC WOODGRAIN TECTURE" GENTIAN CELULOS ATAU BERSAMAAN DENGAN KEMASAN SYELEK 3 LAPISAN.
GENTING KONKRIT BAHAGIAN SISI BUMBUNG (VERGE TILE)

TALANG KONK. TETULANG BERCERUN LANDAI KE RWDP DI LENGKAPI LAPISAN KALIS AIR DAN 15MM ALUR AIR RUJUK LUKISAN JURUTERA.

150X75MM SALUR PAIP AIR HUJAN UPVC JENIS BESSTEM ATAU SETARAF LGKP. DGN. PERANGKAP SAMPAH, PENDAKAP DAN SEGALA AKSESORI PEMASANGAN MERUJUK SPES. DAN BUTIRAN PEMASANGAN PEMBUAT YG DILULUSKAN.

KEMASAN DALAM DINDING DEWAN

KEMASAN DINDING BAHAGIAN ATAS:
FABRITONE FABRIC ACOUSTIC WALL PANEL INCLUDING INFILL AND TIMBER FRAMING TO BE FINISHED WITH 'SPEX' RANGE OF ACOUSTICALLY TRANSPARENT FABRIC WITH SOUNDTRAP MODULAR ACOUSTIC WALL PANEL IN SELECTED AREA MERUJUK BUTIRAN DAN SPESIFIKASI PEMASANGAN PEMBUAT DILULUSKAN.
KEMASAN DINDING BAHAGIAN BAWAH:
TIMBER WALL PANEL COMPRISING OF COMPOSITE PANEL WITH NYATOH TIMBER VENEER TO BE FINISH WITH CLEAR VARNISH MERUJUK BUTIRAN DAN PEMASANGAN PEMBUAT YANG DILULUSKAN.

SPESIFIKASI-SIMBOL & KOD

LANTAI

KOD	SPESIFIKASI STRUKTUR LANTAI
KT	100mm tbl KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.

KOD	SPESIFIKASI KEMASAN LANTAI
CP	200X200X8MM 'PRIME PAVER HEAVY DUTY CONCRETE BASED' ATAU SETARAF YANG DILULUSKAN DIPASANG DI ATAS 'MORTAR BEDDING, DAN MENCERUN LANDAI KE LONGKANG MERUJUK SPESIFIKASI DAN BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN JURUTERA. SAIZ, CORAK DAN WARNA MERUJUK KELULUSAN ARKITEK.
LH1	300x300X8mm JUBIN HOMOGENEOUS PERMUKAAN TIDAK LICIN (MATTE) GRED A DIATAS 20MM. TBL.LEPEKAN SIMEN DGN 100mm JUBIN KAMBI, WARNA DAN CORAK DGN KELULUSAN ARKITEK
LH2	300x300X8mm JUBIN HOMOGENEOUS 'UNGLAZED' LKP DGN 100mm KAMBI, WARNA, CORAK BERSERTA BORDER YANG DILULUSKAN ARKITEK
TS	"AIR-THRUST" PNEUMATIC TIMBER FLOORING SYS. COMPRISING OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING WITH 2 LAYERS OF 12MM THK. WBP PLYWOOD,4.3MM THK. "AIR-THRUST" GENUINE AIR-CELLS NATURAL RUBBER PADS AND A LAYER OF VAPOUR PROOF MEMBRANE AND C/W SANDING AND FINISHING WITH 1 COAT OF STRATE BASE AND 2 COATS OF STRATA SP. A WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO FLOOR ATAU SETARAF YANG DILULUSKAN ARKITEK
TS1	'PERSWOOD' TIMBER FLOORING SYSTEM, MATERIALS COMPRISES OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING AND WITH 1 LAYER 12MM WBP PLYWOOD, C/W SANDING AND FINISHING WITH 1 COAT STRATE BASE AND 2 COATS STRATA SP WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO TREAD OF 255MM WIDE AND RISER OF 150MM HIGH ATAU SETARAF YANG DILULUSKAN ARKITEK
LS	20MM TBL LEPAAN SIMEN (KEMASAN AKHIR CAT EPOXY ATAU SETARAF TANG DILULUSKAN DI MSB DAN DB

NOTA :
1) LAPISAN KALIS LEMBAB DIANTARA LANTAI KONKRIT DAN 'HARDCORE' ADALAH DARI JENIS 'TWO-PART POLYSULPHIDE' ATAU SETARAF YG DILULUSKAN JURUTERA

2) SEMUA JUBIN DILENGKAPI DGN 'MATCHING BORDER TILES'/ 'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

DINDING

KOD	SPESIFIKASI STRUKTUR DINDING
D1	230mm tbl DINDING KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
D2	125mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR
D3	100mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR

KOD	SPESIFIKASI KEMASAN LUAR DINDING
Bb	1 COAT JOTASHIELD PRIMER 07 'WATER BASE ALKALI RESISTING,PURE ACRYLIC WALL PRIMER SEALER. 2 COAT JOTASHIELD 100% ACRYLIC BASE EXTERIOR FINISH 1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMERSEALER' 2 COAT STRAX LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.

KOD	SPESIFIKASI KEMASAN DALAM DINDING
Bb1	1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMER SEALER' 2 COAT STRAX LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.
Bb2	200X200X6MM TBL. JUBIN SERAMIK GILAP SETINGGI ARAS SILING LENGKAP DGN JUBIN BORDER (WARNA & CORAK DITENTUKAN OLEH ARKITEK)
Bb3	FABRITONE FABRIC ACOUSTIC WALL PANEL INCLUDING I NFILL AND TIMBER FRAMING TO BE FINISHED WITH 'SPEX' RANGE OF ACOUSTICALLY TRANSPARENT FABRIC WITH SOUNDTRAP MODULAR ACOUSTIC WALL PANEL IN SELECTED AREA MERUJUK BUTIRAN DAN SPESIFIKASI PEMASANGAN PEMBUAT DILULUSKAN.
Bb4	TIMBER WALL PANEL COMPRISING OF COMPOSITE PANEL WITH NYATOH TIMBER VENEER TO BE FINISH WITH CLEAR VARNISH MERUJUK BUTIRAN DAN PEMASANGAN PEMBUAT YANG DILULUSKAN.

NOTA :
2) SEMUA JUBIN DILENGKAPI DGN MATCHING BORDER TILES'/'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

BUMBUNG

KOD	SPESIFIKASI STRUKTUR BUMBUNG
B1	KERANGKA KELULI LENGKAP DGN SOUND INSULATION DAN VAPOUR BARRIER. RUJUK BUTIRAN JURUTERA.
B2	BUMBUNG RATA KONKRIT 'TETULANG LENGKAP LAPISAN KALIS AIR RUJUK BUTIRAN JURUTERA.

KOD	KEMASAN BUMBUNG
Gc	"TERREAL ROMANE EVO" CLAY ROOF TILES, 12 PCS/M² COMPLETE WITH FULL ACCESSORIES TERREAL COOLMAX, CF2A-FR DESCRIBED IN (GLAZED COLOUR) CODE: MG TILES ARE TO BE ON LIGHT WEIGHT STEEL STRUCTURE SYSTEM RECOMMENDED AND APPROVED BY STRUCTURAL ENGINEER, ALL IN STRICT ACCORDANCE TO MANUFACTURER'S SPECIFICATION AND RECOMMENDATION

NOTA :
1)SEMUA PERMUKAAN BUMBUNG RATA DAN TALANG KONKRIT HENDAKLAH DILETAKAN DGN KEPINGAN KALIS TIRIS DARI JENIS 'ELASTOMERIC LIQUID MEMBRANE' YG DILULUSKAN OLEH JURUTERA.
2)PEMASANGAN MESTILAH MENGIKUT SPESIFIKASI DAN ARAHAN PENGELUAR YANG DILULUSKAN

KELENGKAPAN PINTU

KOMPONEN & JENIS PINTU (P)

KOD	KOMPONEN PINTU/SPESIFIKASI
P1-d	2400 x 2100 X 10MM PINTU PANEL KACA JERNIH DUA HALA (2 DAUN)
P1a-d	2400 x 2100 PINTU PANEL KACA JERNIH dan 2000 x 600 ('TOP HUNG')
P2-d	2400 x 1800 PINTU PANEL KAYU BERHIAS (2 DAUN)
P3-d	1900 x 2100 PINTU KAYU RATA (2 DAUN)
P4-d	1200 x 2100 PINTU KAYU RATA (1DAUN) JENIS GELANSAR (TRACK DI ATAS)
P5-d	900 x 2100 PINTU KAYU RATA DAN 900 x 600 ('TOP HUNG')
P5a-d	900 x 2100 PINTU KAYU RATA (1 DAUN)
P6-d	750 x 2100 PINTU RATA UPVC
P7-d	1200 x 2100 PINTU KAYU RATA (2 DAUN)
P8-d	1300 x 2100 PINTU KAYU RATA DAN 1300 X 600 ('TOP HUNG')
P10-d	700 x 2100 PINTU KAYU RATA DGN RAM TETAP DI BAWAH
P11-d	1800 x 2100 PINTU AKUSTIK YANG DILULUSKAN
P12-d	1800 x 2100 'COMPOSITE DOOR WITH ALUMINIUM ANTI VERMIN NETTING FIXED INSIDE' YG DILULUSKAN
PR1-d	900 x 2100 PINTU RINTANGAN API 1 JAM 2 DAUN
PR2-d	1800 x 2100 PINTU RINTANGAN API 2 JAM 2 DAUN

KELENGKAPAN TINGKAP

KOMPONEN & JENIS TINGKAP (T)

KOD	KOMPONEN TINGKAP/SPESIFIKASI
T1-d	3500MMX800MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2-d	2500MMX700MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS)KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2a-d	2000MMX1200MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T3-d	600MMX900MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T4-d	600MMX2400MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T5-d	1800MMX2425MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T6-d	2750MMX1400MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T7-d	2000MMX2000MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)

NOTA :
SEMUA PINTU HENDAKLAH BERSINGKAI KELULI BERONGGA RUJUK BUTIRAN PENGELUAR DGN KELULUSAN ARKITEK.

SEMUA PINTU DILENGKAPI DGN ARCHITRAVE YG DILULUSKAN

KETERANGAN SIMBOL

KOD	SPESIFIKASI KOMPONEN
WP	RAM TETAP ALUMINIUM JENIS 'DML 85L/4V SUN LOUVERS' WITH VERTICAL CARRIER – HENDAKLAH MENGIKUT SPESIFIKASI PENGELUAR ATAU SETARA DGN. KELULUSAN ARKITEK
ST	1250 TINGGI SUSUR TANGAN BATU BATA DGN KEMASAN LUAR 'SPRAY GRANITE' JENIS ELEGANSTONE MS-336 DGN 50MM SUSUR TANGAN KELULI SEDERHANA KERAS ATAU SETARA YG DILULUSKAN ARKITEK
ST1	50MMX900MM TINGGI SUSUR TANGAN KELULI SEDERHANA KERAS DENGAN SAMBUNGAN KIMPALAN
RWDP	150 x 75mm SALUR TURUN AIR HUJAN JENIS UPVC
	150 x 150mm PERANGKAP LANTAI KELULI TAHAN KARAT ANTI ROACH

P	PINTU	AL	ARAS LANTAI
T	TINGKAP	AJ	ARAS JALAN
	OKU	AT	ARAS TANAH
TAJUK BUTIRAN NO RUJUKAN LUKISAN			RUJUKAN BUTIRAN

NOTA :
PEMASANGAN KEMASAN HENDAKLAH MENDAPAT KELULUSAN ARKITEK SEBELUM PEMASANGAN DENGAN DISERTAKAN BERSAMA
1) 'SHOP DRWG' DARI PEMBEKAL
2) MH-KEDUDUKAN LURANG RUJUK LUKISAN JURUTERA UNTUK KEDUDUKAN SEBENAR

KEPERLUAN BOMBA

KOD	ALAT-ALAT PENCEGAH KEBAKARAN
EL	LAMPU KECEMASAN
	DRY POWDER EXTINGUISHER 9KG ABC(DP)
	CARBON DIOXIDE EXTINGUISHER 2.3 KG (CO2)
	LOCENG KECEMASAN
HR	GEGELONG HOSE
K	KELUAR
PR	PINTU RINTANGAN API
H	HYDRANT DUA HALA
FMS	FIREMEN ISOLATION SWITCH

NOTA AM

- SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA
- SEMUA KERJA-KERJA STRUKTUR, SILA RUJUK LUKISAN STRUKTUR
- SEMUA KERJA-KERJA SIVIL, SILA RUJUK LUKISAN SIVIL
- SEMUA KERJA-KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN, SILA RUJUK LUKISAN BEKALAN AIR.
- SEMUA KERJA-KERJA MEKANIKAL, SILA RUJUK LUKISAN MEKANIKAL.
- SEMUA KERJA-KERJA ELEKTRIKAL, SILA RUJUK LUKISAN ELEKTRIKAL.

PELANGGAN

TANDATANGAN & COP KELULUSAN PELANGGAN

JKR

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK	
Ar. ZAIRUL AZIDIN BIN BADRI	
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA	
Ar. HJH. MARIANI NOOR BT. HJ. SUHUD	
ARKITEK PENGUASA KANAN	
MOHAMMAD ISA BIN HUSSAIN (A.M.P)	
ARKITEK PENGUASA	
NARIMA HANIM BT. ZAINAL ABIDIN	
ARKITEK	
MOHAMAD HAZIMIN BIN ISMAIL	

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN
	PINDAAN A 1. PERUBAHAN SAIZ TALANG AIR HUJAN KONKRIT BERTETULANG DARIPADA SAIZ ASAL 1000 X 550MM KEPADA 1350 X 550MM 2. TAMBAHAN 2 NOS SALUR TEGAK AIR HUJAN (STAH)DI GRID 2-B DAN 2-H 3. SUDUT 'COPING' DITUKAR DARIPADA 30° KEPADA 20°	FEB 2017	

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET
- **PANDANGAN HADAPAN**
- **PANDANGAN BELAKANG**
- **KERATAN A-A**

DILUKIS	DISEMAK
Assory	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

JKR/CA/14/01/R15/060/DB/5

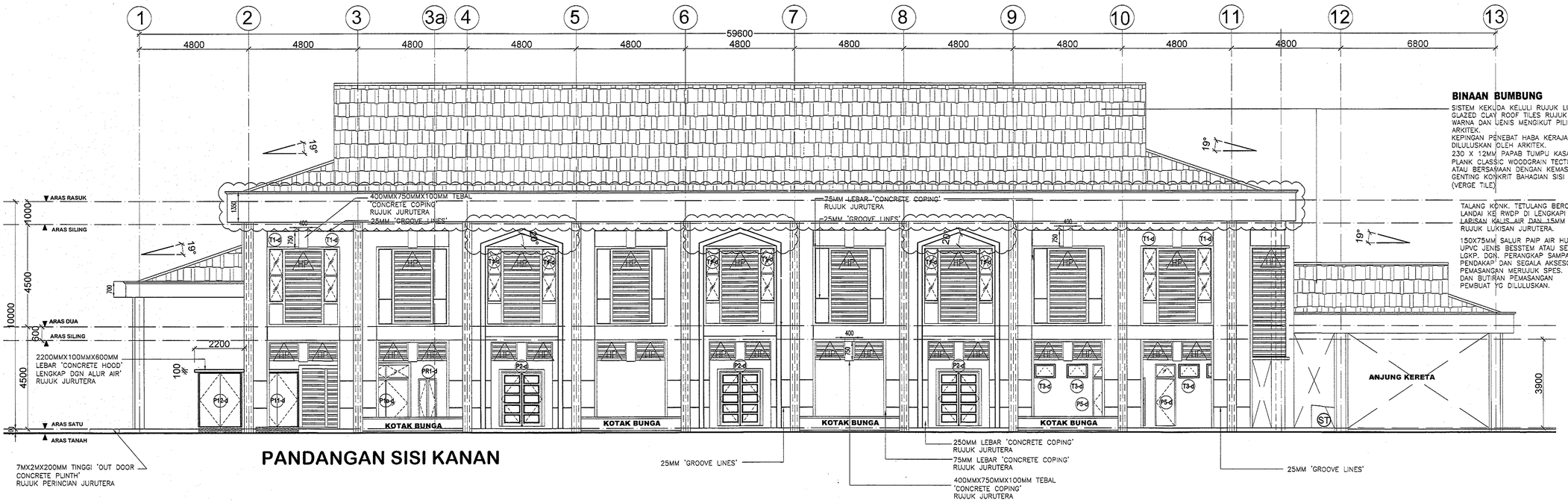
PINDAAN

A

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



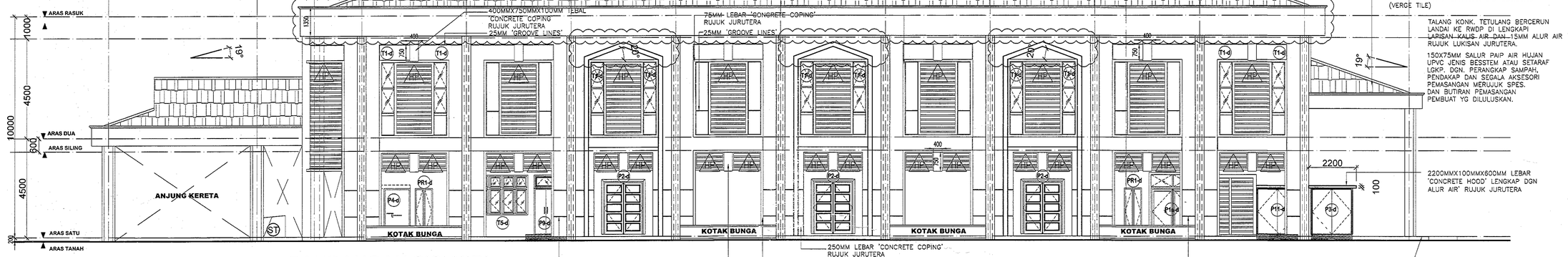
PANDANGAN SISI KANAN

BINAAN BUMBUNG

SISTEM KEKUDA KELULI RUJUK LUKISAN JURUTERA.
GLAZED CLAY ROOF TILES RUJUK BUTIRAN PENGELUAR, WARNA DAN JENIS MENGIKUT PILIHAN DAN KELULUSAN ARKITEK.
KEPINGAN PENEBAT HABA KERAJANG ALUMINIUM YANG DILULUSKAN OLEH ARKITEK.
230 X 12MM PAPAB TUMPU KASAU "HUME PRIMA PLANK CLASSIC WOODGRAIN TECTURE" GENTIAN CELULOS ATAU BERSAMAAN DENGAN KEMASAN SYELEK 3 LAPISAN.
GENTING KONKRIT BAHAGIAN SISI BUMBUNG (VERGE TILE)

TALANG KONK. TETULANG BERCERUN LANDAI KE RWDP DI LENGKAPI LAPISAN KALIS AIR DAN 15MM ALUR AIR RUJUK LUKISAN JURUTERA.

150X75MM SALUR PAIP AIR HUJAN UPVC JENIS BESSTEM ATAU SETARAF LGKP. DGN. PERANGKAP SAMPAH, PENDAKAP DAN SEGALA AKSESORI PEMASANGAN MERUJUK SPES.
DAN BUTIRAN PEMASANGAN PEMBUAT YG DILULUSKAN.



PANDANGAN SISI KIRI

BINAAN BUMBUNG

SISTEM KEKUDA KELULI RUJUK LUKISAN JURUTERA.
GLAZED CLAY ROOF TILES RUJUK BUTIRAN PENGELUAR, WARNA DAN JENIS MENGIKUT PILIHAN DAN KELULUSAN ARKITEK.
KEPINGAN PENEBAT HABA KERAJANG ALUMINIUM YANG DILULUSKAN OLEH ARKITEK.
230 X 12MM PAPAB TUMPU KASAU "HUME PRIMA PLANK CLASSIC WOODGRAIN TECTURE" GENTIAN CELULOS ATAU BERSAMAAN DENGAN KEMASAN SYELEK 3 LAPISAN.
GENTING KONKRIT BAHAGIAN SISI BUMBUNG (VERGE TILE)

TALANG KONK. TETULANG BERCERUN LANDAI KE RWDP DI LENGKAPI LAPISAN KALIS AIR DAN 15MM ALUR AIR RUJUK LUKISAN JURUTERA.

150X75MM SALUR PAIP AIR HUJAN UPVC JENIS BESSTEM ATAU SETARAF LGKP. DGN. PERANGKAP SAMPAH, PENDAKAP DAN SEGALA AKSESORI PEMASANGAN MERUJUK SPES.
DAN BUTIRAN PEMASANGAN PEMBUAT YG DILULUSKAN.

SPESIFIKASI-SIMBOL & KOD

LANTAI (STRUKTUR — KT — ARAS LANTAI — SMP — PK — KEMASAN)

KOD	SPESIFIKASI STRUKTUR LANTAI
KT	100mm tbl KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.

KOD	SPESIFIKASI KEMASAN LANTAI
CP	200x200X80MM 'PRIME PAVER HEAVY DUTY CONCRETE BASED' ATAU SETARAF YANG DILULUSKAN DIPASANG DI ATAS 'MORTAR BEDDING, DAN MENGERUH LANDAI KE LONGKANG MERUJUK SPESIFIKASI DAN BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN JURUTERA. SAIZ, CORAK DAN WARNA MERUJUK KELULUSAN ARKITEK.
LH1	300x300X8mm JUBIN HOMOGENEOUS PERMUKAAN TIDAK LICIN (MATTIE) GRED A DIATAS 20MM. TBL.LEPEKAN SIMEN DGN 100mm JUBIN KAMBI, WARNA DAN CORAK DGN KELULUSAN ARKITEK
LH2	300x300X8mm JUBIN HOMOGENEOUS 'UNGLAZED' LKP DGN 100mm KAMBI, WARNA, CORAK BERSERTA BORDER YANG DILULUSKAN ARKITEK
TS	'AIR-THRUST' PNEUMATIC TIMBER FLOORING SYS. COMPRISING OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING WITH 2 LAYERS OF 12MM THK. WBP PLYWOOD,4.3MM THK. 'AIR-THRUST' GENUINE AIR-CELLS NATURAL RUBBER PADS AND A LAYER OF VAPOUR PROOF MEMBRANE AND C/W SANDING AND FINISHING WITH 1 COAT OF STRATE BASE AND 2 COATS OF STRATA SP, A WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO FLOOR ATAU SETARAF YANG DILULUSKAN ARKITEK
TS1	'PERSWOOD' TIMBER FLOORING SYSTEM. MATERIALS COMPRISES OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING AND WITH 1 LAYER 12MM WBP PLYWOOD. C/W SANDING AND FINISHING WITH 1 COAT 'STRATE BASE AND 2 COATS 'STRATA SP WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO TREAD OF 255MM WIDE AND RISER OF 150MM HIGH ATAU SETARAF YANG DILULUSKAN ARKITEK
LS	20MM TBL LEPAIAN SIMEN ' KEMASAN AKHIR CAT EPOXY ATAU SETARAF TANG DILULUSKAN DI MSB DAN DB

NOTA :
1) LAPISAN KALIS LEMBAB DIANTARA LANTAI KONKRIT DAN 'HARDCORE' ADALAH DARI JENIS 'TWO-PART POLYSULPHIDE' ATAU SETARAF YG DILULUSKAN JURUTERA
2) SEMUA JUBIN DILENGKAPI DGN 'MATCHING BORDER TILES'/ 'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

DINDING (KEMASAN LUAR — STRUKTUR — KEMASAN DALAM)

KOD	SPESIFIKASI STRUKTUR DINDING
D1	230mm tbl DINDING KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
D2	125mm TBL BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR
D3	100mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR

KOD	SPESIFIKASI KEMASAN LUAR DINDING
Bb	1 COAT JOTASHIELD PRIMER 07 'WATER BASE ALKALI RESISTING,PURE ACRYLIC WALL PRIMER SEALER. 2 COAT JOTASHIELD 100% ACRYLIC BASE EXTERIOR FINISH 1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMERSEALER' 2 COAT STRAX LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.

KOD	SPESIFIKASI KEMASAN DALAM DINDING
Bb1	1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMER SEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.
Bb2	200X200X6MM TBL. JUBIN SERAMIK GILAP SETINGGI ARAS SILING LENGKAP DGN JUBIN BORDER (WARNA & CORAK DITENTUKAN OLEH ARKITEK)
Bb3	FABRITONE FABRIC ACOUSTIC WALL PANEL INCLUDING I NFILL AND TIMBER FRAMING TO BE FINISHED WITH 'SPEX' RANGE OF ACOUSTICALLY TRANSPARENT FABRIC WITH SOUNDTRAP MODULAR ACOUSTIC WALL PANEL IN SELECTED AREA MERUJUK BUTIRAN DAN SPESIFIKASI PEMASANGAN PEMBUAT DILULUSKAN.
Bb4	TIMBER WALL PANEL COMPRISING OF COMPOSITE PANEL WITH NYATOH TIMBER VENEER TO BE FINISH WITH CLEAR VARNISH MERUJUK BUTIRAN DAN PEMASANGAN PEMBUAT YANG DILULUSKAN.

NOTA :
2) SEMUA JUBIN DILENGKAPI DGN MATCHING BORDER TILES'/'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

BUMBUNG (STRUKTUR — KEMASAN)

KOD	SPESIFIKASI STRUKTUR BUMBUNG
B1	KERANGKA KELULI LENGKAP DGN SOUND INSULATION DAN VAPOUR BARRIER. RUJUK BUTIRAN JURUTERA.
B2	BUMBUNG RATA KONKRIT TETULANG LENGKAP LAPISAN KALIS AIR RUJUK BUTIRAN JURUTERA.

KOD	KEMASAN BUMBUNG
Gc	"TERREAL ROMANE EVO" CLAY ROOF TILES, 12 PCS/M² COMPLETE WITH FULL ACCESSORIES TERREAL COOLMAX, CF2A-PR DESCRIBED IN (GLAZED COLOUR) CODE: MG TILES ARE TO BE ON LIGHT WEIGHT STEEL STRUCTURE SYSTEM RECOMMENDED AND APPROVED BY STRUCTURAL ENGINEER, ALL IN STRICT ACCORDANCE TO MANUFACTURER'S SPECIFICATION AND RECOMMENDATION

NOTA :
1)SEMUA PERMUKAAN BUMBUNG RATA DAN TALANG KONKRIT HENDAKLAH DILETAKAN DGN KEPINGAN KALIS TIRIS DARI JENIS 'ELASTOMERIC LIQUID MEMBRANE' YG DILULUSKAN OLEH JURUTERA.
2)PEMASANGAN MESTILAH MENGIKUT SPESIFIKASI DAN ARAHAN PENGELUAR YANG DILULUSKAN

KELENGKAPAN PINTU (KOMPONEN & JENIS PINTU — E)

KOD	KOMPONEN PINTU/SPESIFIKASI
P1-d	2400 x 2100 X 10MM PINTU PANEL KACA JERNIH DUA HALA (2 DAUN)
P1a-d	2400 x 2100 PINTU PANEL KACA JERNIH dan 2000 x 600 ('TOP HUNG')
P2-d	2400 x 1800 PINTU PANEL KAYU BERHIAS (2 DAUN)
P3-d	1900 x 2100 PINTU KAYU RATA (2 DAUN)
P4-d	1200 x 2100 PINTU KAYU RATA (1DAUN) JENIS GELANGSAR (TRACK DI ATAS)
P5-d	900 x 2100 PINTU KAYU RATA DAN 900 x 600 ('TOP HUNG')
P5a-d	900 x 2100 PINTU KAYU RATA (1 DAUN)
P6-d	750 x 2100 PINTU RATA UPVC
P8-d	1200 x 2100 PINTU KAYU RATA (2 DAUN)
P9-d	1300 x 2100 PINTU KAYU RATA DAN 1300 X 600 ('TOP HUNG')
P10-d	700 x 2100 PINTU KAYU RATA DGN RAM TETAP DI BAWAH
P11-d	1800 x 2100 PINTU AKUSTIK YANG DILULUSKAN
P12-d	1800 x 2100 'COMPOSITE DOOR WITH ALUMINIUM ANTI VERMIN NETTING FIXED INSIDE' YG DILULUSKAN
PR1-d	900 x 2100 PINTU RINTANGAN API 1 JAM 2 DAUN
PR2-d	1800 x 2100 PINTU RINTANGAN API 2 JAM 2 DAUN

NOTA :
SEMUA PINTU HENDAKLAH BERBINGKAI KELULI BERONGGA RUJUK BUTIRAN PENGELUAR DGN KELULUSAN ARKITEK.

SEMUA PINTU DILENGKAPI DGN ARCHITRAVE YG DILULUSKAN

KELENGKAPAN TINGKAP (KOMPONEN & JENIS TINGKAP — T)

KOD	KOMPONEN TINGKAP/SPESIFIKASI
T1-d	3500MMX800MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2-d	2500MMX700MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS)KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2a-d	2000MMX1200MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T3-d	600MMX900MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T4-d	600MMX2400MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T5-d	1800MMX2425MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T6-d	2750MMX1400MMX8MM TBL. (TINGKAP 'TOP HUNG' DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T7-d	2000MMX2000MMX8MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)

KETERANGAN SIMBOL

KOD	SPESIFIKASI KOMPONEN
HP	RAM TETAP ALUMINIUM JENIS 'DML 85L/4V SUN LOUVERS' WITH VERTICAL CARRIER – HENDAKLAH MENGIKUT SPESIFIKASI PENGELUAR ATAU SETARA DGN. KELULUSAN ARKITEK
ST	1250 TINGGI SUSUR TANGAN BATU BATA DGN KEMASAN LUAR 'SPRAY GRANITE' JENIS ELEGANSTONE MS-335 DGN 50MM SUSUR TANGAN KELULI SEDERHANA KERAS ATAU SETARA YG DILULUSKAN ARKITEK
ST1	50MMX900MM TINGGI SUSUR TANGAN KELULI SEDERHANA KERAS DENGAN SAMBUNGAN KIMPALAN
RWDP	150 x 75mm SALUR TURUN AIR HUJAN JENIS UPVC
FL	150 x 150mm PERANGKAP LANTAI KELULI TAHAN KARAT ANTI ROACH
P	PINTU
T	TINGKAP
OKU	OKU
TAJUK BUTIRAN NO RUJUKAN LUKISAN	RUJUKAN BUTIRAN

KOD	
AL	ARAS LANTAI
AJ	ARAS JALAN
AT	ARAS TANAH

NOTA :
PEMASANGAN KEMASAN HENDAKLAH MENDAPAT KELULUSAN ARKITEK SEBELUM PEMASANGAN DENGAN DISERTAKAN BERSAMA
1) 'SHOP DRWG' DARI PEMBEKAL
2) MH–KEDUDUKAN LURANG RUJUK LUKISAN JURUTERA UNTUK KEDUDUKAN SEBENAR

KEPERLUAN BOMBA

KOD	ALAT–ALAT PENCEGAH KEBAKARAN
EL	LAMPU KECEMASAN
◁	DRY POWDER EXTINGUISHER 9KG ABC(DP)
◁	CARBON DIOXIDE EXTINGUISHER 2.3 KG (CO2)
⊗	LOCENG KECEMASAN
HR	GEGELONG HOSE
K	KELUAR
PB	PINTU RINTANGAN API
H	HYDRANT DUA HALA
FMS	FIREMEN ISOLATION SWITCH

NOTA AM

- SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA
- SEMUA KERJA–KERJA STRUKTUR, SILA RUJUK LUKISAN STRUKTUR
- SEMUA KERJA–KERJA SIVIL, SILA RUJUK LUKISAN SIVIL
- SEMUA KERJA–KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN, SILA RUJUK LUKISAN BEKALAN AIR.
- SEMUA KERJA–KERJA MEKANIKAL, SILA RUJUK LUKISAN MEKANIKAL.
- SEMUA KERJA–KERJA ELEKTRIKAL, SILA RUJUK LUKISAN ELEKTRIKAL.

PELANGGAN

TANDATANGAN & COP KELULUSAN PELANGGAN

JKR

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK	
Ar. ZAIRUL AZIDIN BIN BADRI	
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA	
Ar. HJH. MARIANI NOOR BT. HJ. SUHUD	
ARKITEK PENGUASA KANAN	
MOHAMMAD ISA BIN HUSSAIN (A.M.P)	
ARKITEK PENGUASA	
NARIMA HANIM BT. ZAINAL ABIDIN	
ARKITEK	
MOHAMAD HAZIMIN BIN ISMAIL	

NOTA AM

1. KONTRAKTOR ADALAH DIPERTANGGUNGJAWABKAN UNTUK MENYEMAK DAN MENENTUKAN KESEMUA UKURAN DI TAPAK BINA MENGIKUT DIMENSI YANG ADA DIDALAM LUKISAN SEBELUM MENJALANKAN SEBARANG KERJA. AKITEK HENDAKLAH DIMAKLUMKAN DENGAN SEGERA JIKA TERDAPAT SEBARANG PERBEZAAN UKURAN.

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN
	PINDAAN A 1. PERUBAHAN SAIZ TALANG AIR HUJAN KONKRIT BERTETULANG DARIPADA SAIZ ASAL 1000 X 550MM KEPADA 1350 X 350MM 2. TAMBAHAN 2 NO.S SALUR TEGAK AIR HUJAN (STAH)DI GRID 2–B DAN 2–H 3. SUDUT 'COPING' DITUKAR DARIPADA 30° KEPADA 20°	FEB 2017	

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET
- PANDANGAN SISI KANAN
- PANDANGAN SISI KIRI

DILUKIS	DISEMAK
Assory	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

JKR/CA/14/01/R15/060/DB/4

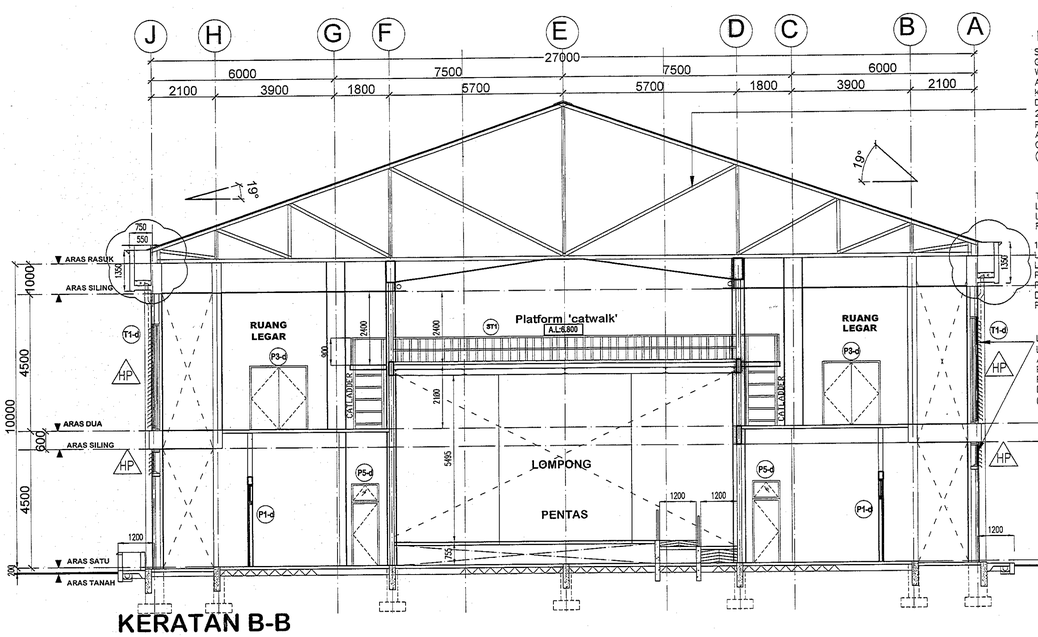
PINDAAN

A

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



KERATAN B-B

BINAAN BUMBUNG

SISTEM KEKUDA KELULI RUJUK LUKISAN JURUTERA.
GLAZED CLAY ROOF TILES RUJUK BUTIRAN PENGELUAR, WARNA DAN JENIS MENGIKUT PILIHAN DAN KELULUSAN ARKITEK.
KEPINGAN PENEBAT HABA KERAJANG ALUMINIUM YANG DILULUSKAN OLEH ARKITEK.
230 X 12MM PAPAB TUMPU KASAU "HUME PRIMA PLANK CLASSIC WOODGRAIN TECTURE" GENTIAN CELULOS ATAU BERSAMAAN DENGAN KEMASAN SYELEK 3 LAPISAN.
GENTING KONKRIT BAHAGIAN SISI BUMBUNG (VERGE TILE)

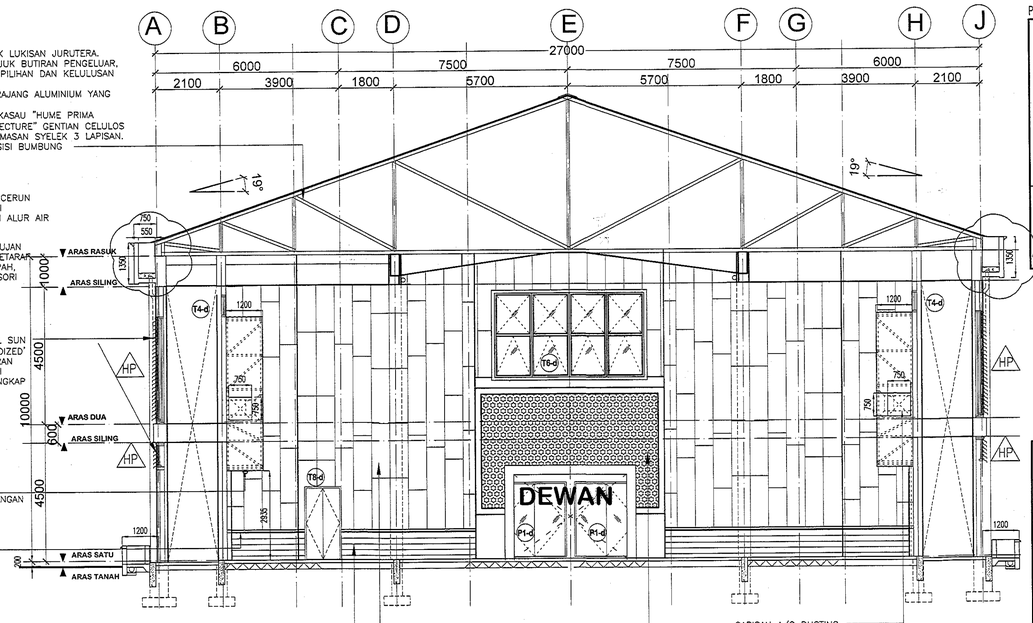
TALANG KONK. TETULANG BERCERUN LANDAI KE RWDP DI LENGKAPI LAPISAN KALIS AIR DAN 15MM ALUR AIR RUJUK LUKISAN JURUTERA.

150X75MM SALUR PAIP AIR HUJAN UPVC JENIS BESSTEM ATAU SETARAF LGKP. DGN. PERANGKAP SAMPAH, PENDAKAP DAN SEGALA AKSESORI PEMASANGAN MERUJUK SPES. DAN BUTIRAN PEMASANGAN PEMBUAT YG DILULUSKAN.

LOUVERS ALUMINIUM DML 85L SUN LOUVERS JENIS'NATURAL ANODIZED' ATAU SETARA MERUJUK BUTIRAN PEMASANGAN DAN SPESIFIKASI PEMBUAT YG DILULUSKAN LENGKAP DGN SEGALA AKSESORI (SAIZ RUJUK DI TAPAK)

DECORATIVE 'DOWN LIGHT' LKP. DGN AKSESORI PEMASANGAN YG SETARAF DILULUSKAN. RUJUK JURUTERA ELEKTRIK

:30x15MM "BORDER"



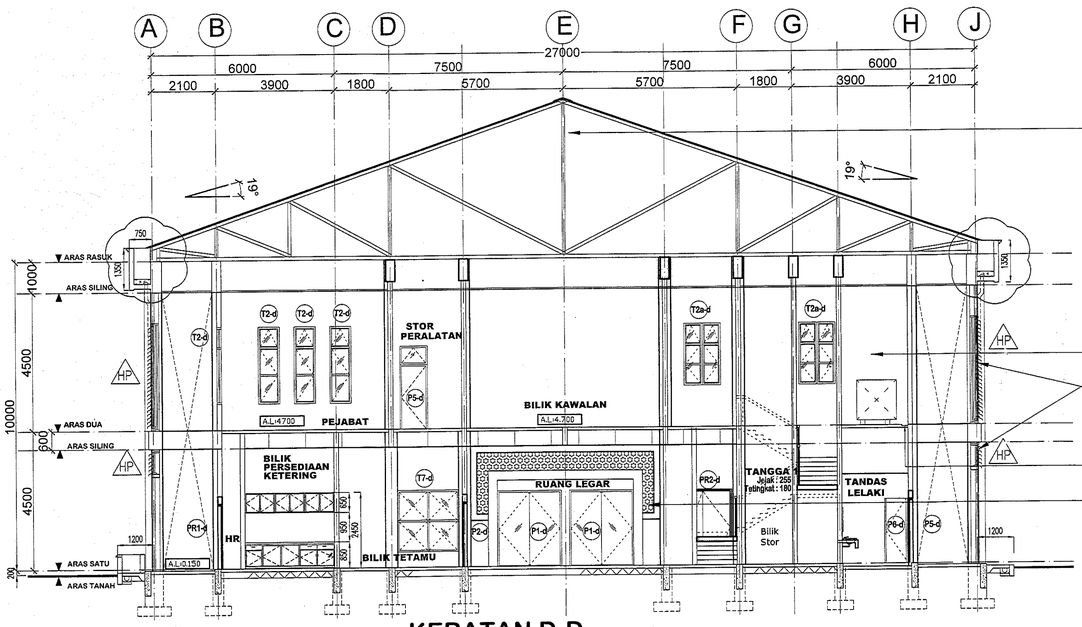
KERATAN C-C

GARISAN A/C DUCTING.
RUJUK JURUTERA ELEKTRIK

REKABENTUK GRC PANEL MERUJUK KEPADA BUTIRAN PEMBEKAL DAN SPESIFIKASI PEMASANGAN PEMBUAT. REKABENTUK DAN WARNA MENGIKUT KELULUSAN ARKITEK

KEMASAN DALAM DINDING DEWAN

KEMASAN DINDING BAHAGIAN ATAS:
FABRITONE FABRIC ACOUSTIC WALL PANEL INCLUDING INFILL AND TIMBER FRAMING TO BE FINISHED WITH 'SPEX' RANGE OF ACOUSTICALLY TRANSPARENT FABRIC WITH SOUNDTRAP MODULAR ACOUSTIC WALL PANEL IN SELECTED AREA MERUJUK BUTIRAN DAN SPESIFIKASI PEMASANGAN PEMBUAT DILULUSKAN.
KEMASAN DINDING BAHAGIAN BAWAH:
TIMBER WALL PANEL COMPRISING OF COMPOSITE PANEL WITH NYATOH TIMBER VENEER TO BE FINISH WITH CLEAR VARNISH MERUJUK BUTIRAN DAN PEMASANGAN PEMBUAT YANG DILULUSKAN.



KERATAN D-D

BINAAN BUMBUNG

SISTEM KEKUDA KELULI RUJUK LUKISAN JURUTERA.
GLAZED CLAY ROOF TILES RUJUK BUTIRAN PENGELUAR, WARNA DAN JENIS MENGIKUT PILIHAN DAN KELULUSAN ARKITEK.
KEPINGAN PENEBAT HABA KERAJANG ALUMINIUM YANG DILULUSKAN OLEH ARKITEK.
230 X 12MM PAPAB TUMPU KASAU "HUME PRIMA PLANK CLASSIC WOODGRAIN TECTURE" GENTIAN CELULOS ATAU BERSAMAAN DENGAN KEMASAN SYELEK 3 LAPISAN.
GENTING KONKRIT BAHAGIAN SISI BUMBUNG (VERGE TILE)

TALANG KONK.RTETULANG BERCERUN LANDAI KE RWDP DI LENGKAPI LAPISAN KALIS AIR.
RUJUK LUKISAN JURUTERA.

150X75MM SALUR PAIP AIR HUJAN UPVC JENIS BESSTEM ATAU SETARAF LGKP. DGN. PERANGKAP SAMPAH, PENDAKAP DAN SEGALA AKSESORI PEMASANGAN MERUJUK SPES. DAN BUTIRAN PEMASANGAN PEMBUAT YG DILULUSKAN.

RUANG TANGKI AIR
(RUJUK JURUTERA)

LOUVERS ALUMINIUM DML 85L SUN LOUVERS JENIS'NATURAL ANODIZED' ATAU SETARA MERUJUK BUTIRAN SPESIFIKASI PEMBUAT YG DILULUSKAN LENGKAP DGN SEGALA AKSESORI
(SAIZ RUJUK DI TAPAK)

LONGKANG 'SCUPPER' DENGAN KECERUNAN RUJUK JURUTERA

REKABENTUK GRC PANEL MERUJUK KEPADA BUTIRAN PEMBEKAL DAN SPESIFIKASI PEMASANGAN PEMBUAT. REKABENTUK DAN WARNA MENGIKUT KELULUSAN ARKITEK

SPESIFIKASI-SIMBOL & KOD

LANTAI (STRUKTUR – KT | PK – KEMASAN; ARAS LANTAI SIAP)

KOD	SPESIFIKASI STRUKTUR LANTAI
KT	100mm tbl KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
KOD	**SPESIFIKASI KEMASAN LANTAI**
CP	200X200X8MM 'PRIME PAVER HEAVY DUTY CONCRETE BASED' ATAU SETARAF YANG DILULUSKAN DIPASANG DI ATAS 'MORTAR BEDDING, DAN MENGERUN LANDAI KE LONGKANG MERUJUK SPESIFIKASI DAN BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN JURUTERA. SAIZ, CORAK DAN WARNA MERUJUK KELULUSAN ARKITEK.
LH1	300x300X8mm JUBIN HOMOGENEOUS PERMUKAAN TIDAK LICIN (MATTE) GRED A DIATAS 20MM. TBL.LEPEKAN SIMEN DGN 100mm JUBIN KAMBI. WARNA DAN CORAK DGN KELULUSAN ARKITEK
LH2	300x300X8mm JUBIN HOMOGENEOUS 'UNGLAZED' LKP DGN 100mm KAMBI. WARNA, CORAK BERSERTA BORDER YANG DILULUSKAN ARKITEK
TS	"AIR–THRUST" PNEUMATIC TIMBER FLOORING SYS. COMPRISING OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING WITH 2 LAYERS OF 12MM THK. WBP PLYWOOD,4.3MM THK. "AIR–THRUST" GENUINE AIR–CELLS NATURAL RUBBER PADS AND A LAYER OF VAPOUR PROOF MEMBRANE AND C/W SANDING AND FINISHING WITH 1 COAT OF STRATE BASE AND 2 COATS OF STRATA SP, A WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO FLOOR ATAU SETARAF YANG DILULUSKAN ARKITEK
TS1	'PERSWOOD' TIMBER FLOORING SYSTEM, MATERIALS COMPRISES OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING AND WITH 1 LAYER 12MM WBP PLYWOOD, C/W SANDING AND FINISHING WITH 1 COAT STRATE BASE AND 2 COATS STRATA SP WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO TREAD OF 255MM WIDE AND RISER OF 150MM HIGH ATAU SETARAF YANG DILULUSKAN ARKITEK
LS	20MM TBL LEPAAN SIMEN (KEMASAN AKHIR CAT EPOXY ATAU SETARAF YANG DILULUSKAN DI MSS DAN DB

NOTA :
1) LAPISAN KALIS LEMBAB DIANTARA LANTAI KONKRIT DAN 'HARDCORE' ADALAH DARI JENIS 'TWO–PART POLYSULPHIDE' ATAU SETARAF YG DILULUSKAN JURUTERA

2) SEMUA JUBIN DILENGKAPI DGN 'MATCHING BORDER TILES'/ 'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

DINDING (KEMASAN LUAR | STRUKTUR | KEMASAN DALAM)

KOD	SPESIFIKASI STRUKTUR DINDING
D1	230mm tbl DINDING KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
D2	125mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR
D3	100mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR

KOD	SPESIFIKASI KEMASAN LUAR DINDING
Bb	1 COAT JOTASHIELD PRIMER 07 'WATER BASE ALKALI RESISTING,PURE ACRYLIC WALL PRIMER SEALER. 2 COAT JOTASHIELD 100% ACRYLIC BASE EXTERIOR FINISH 1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMERSEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.

KOD	SPESIFIKASI KEMASAN DALAM DINDING
Bb1	1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMER SEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.
Bb2	200X200X8MM TBL. JUBIN SERAMIK GILAP SETINGGI ARAS SILING LENGKAP DGN JUBIN BORDER (WARNA & CORAK DITENTUKAN OLEH ARKITEK)
Bb3	FABRITONE FABRIC ACOUSTIC WALL PANEL INCLUDING I NFILL AND TIMBER FRAMING TO BE FINISHED WITH 'SPEX' RANGE OF ACOUSTICALLY TRANSPARENT FABRIC WITH SOUNDTRAP MODULAR ACOUSTIC WALL PANEL IN SELECTED AREA MERUJUK BUTIRAN DAN SPESIFIKASI PEMASANGAN PEMBUAT DILULUSKAN.
Bb4	TIMBER WALL PANEL COMPRISING OF COMPOSITE PANEL WITH NYATOH TIMBER VENEER TO BE FINISH WITH CLEAR VARNISH MERUJUK BUTIRAN DAN PEMASANGAN PEMBUAT YANG DILULUSKAN.

NOTA :
2) SEMUA JUBIN DILENGKAPI DGN 'MATCHING BORDER TILES'/'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

BUMBUNG (STRUKTUR – KEMASAN)

KOD	SPESIFIKASI STRUKTUR BUMBUNG
B1	KERANGKA KELULI LENGKAP DGN SOUND INSULATION DAN VAPOUR BARRIER. RUJUK BUTIRAN JURUTERA.
B2	BUMBUNG RATA KONKRIT TETULANG LENGKAP LAPISAN KALIS AIR RUJUK BUTIRAN JURUTERA.
KOD	**KEMASAN BUMBUNG**
Gc	"TERREAL ROMANE EVO" CLAY ROOF TILES, 12 PCS/M² COMPLETE WITH FULL ACCESSORIES TERREAL COOLMAX, CF2A–FR DESCRIBED IN (GLAZED COLOUR) CODE: MG TILES ARE TO BE ON LIGHT WEIGHT STEEL STRUCTURE SYSTEM RECOMMENDED AND APPROVED BY STRUCTURAL ENGINEER, ALL IN STRICT ACCORDANCE TO MANUFACTURER'S SPECIFICATION AND RECOMMENDATION

NOTA :
1)SEMUA PERMUKAAN BUMBUNG RATA DAN TALANG KONKRIT HENDAKLAH DILETAKAN DGN KEPINGAN KALIS TIRIS DARI JENIS 'ELASTOMERIC LIQUID MEMBRANE' YG DILULUSKAN OLEH JURUTERA.
2)PEMASANGAN MESTILAH MENGIKUT SPESIFIKASI DAN ARAHAN PENGELUAR YANG DILULUSKAN

KELENGKAPAN PINTU KOMPONEN & JENIS PINTU (P)

KOD	KOMPONEN PINTU/SPESIFIKASI
P1-d	2400 x 2100 X 10MM PINTU PANEL KACA JERNIH DUA HALA (2 DAUN)
P1a-d	2400 x 2100 PINTU PANEL KACA JERNIH dan 2000 x 800 ('TOP HUNG')
P2-d	2400 x 1800 PINTU PANEL KAYU BERHIAS (2 DAUN)
P3-d	1900 x 2100 PINTU KAYU RATA (2 DAUN)
P4-d	1200 x 2100 PINTU KAYU RATA (1DAUN) JENIS GELANGSAR (TRACK DI ATAS)
P5-d	900 x 2100 PINTU KAYU RATA DAN 900 x 600 ('TOP HUNG')
P5a-d	900 x 2100 PINTU KAYU RATA (1 DAUN)
P6-d	750 x 2100 PINTU RATA UPVC
P8-d	1200 x 2100 PINTU KAYU RATA (2 DAUN)
P9-d	1300 x 2100 PINTU KAYU RATA DAN 1300 X 600 ('TOP HUNG')
P10-d	700 x 2100 PINTU KAYU RATA DGN RAM TETAP DI BAWAH
P11-d	1800 x 2100 PINTU AKUSTIK YANG DILULUSKAN
P13-d	1800 x 2100 "COMPOSITE DOOR WITH ALUMINIUM ANTI VERMIN NETTING FIXED INSIDE" YG DILULUSKAN
PR1-d	600 x 2100 PINTU RINTANGAN API 1 JAM 2 DAUN
PR2-d	1800 x 2100 PINTU RINTANGAN API 2 JAM 2 DAUN

NOTA :
SEMUA PINTU HENDAKLAH BERBINGKAI KELULI BERONGGA RUJUK BUTIRAN PENGELUAR DGN KELULUSAN ARKITEK.

SEMUA PINTU DILENGKAPI DGN ARCHITRAVE YG DILULUSKAN

KELENGKAPAN TINGKAP KOMPONEN & JENIS TINGKAP (T)

KOD	KOMPONEN TINGKAP/SPESIFIKASI
T1-d	3500MMX800MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2-d	2500MMX700MMX5MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS)KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2a-d	2000MMX1200MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T3-d	600MMX900MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T4-d	600MMX2400MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T5-d	1800MMX2425MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T6-d	2750MMX1400MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T7-d	2000MMX2000MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)

KETERANGAN SIMBOL

KOD	SPESIFIKASI KOMPONEN		
HP	RAM TETAP ALUMINIUM JENIS 'DML 85L/4V SUN LOUVERS' WITH VERTICAL CARRIER – HENDAKLAH MENGIKUT SPESIFIKASI PENGELUAR ATAU SETARA DGN. KELULUSAN ARKITEK		
ST	1250 TINGGI SUSUR TANGAN BATU BATA DGN KEMASAN LUAR 'SPRAY GRANITE' JENIS ELEGANSTONE MS–336 DGN 50MM SUSUR TANGAN KELULI SEDERHANA KERAS ATAU SETARA YG DILULUSKAN ARKITEK		
ST1	50MMX900MM TINGGI SUSUR TANGAN KELULI SEDERHANA KERAS DENGAN SAMBUNGAN KIMPALAN		
RWDP	150 x 75mm SALUR TURUN AIR HUJAN JENIS UPVC		
FL	150 x 150mm PERANGKAP LANTAI KELULI TAHAN KARAT ANTI ROACH		
P	PINTU	AL	ARAS LANTAI
T	TINGKAP	AJ	ARAS JALAN
OKU		AT	ARAS TANAH
TAJUK BUTIRAN NO.RUJUKAN LUKISAN		RUJUKAN BUTIRAN	

NOTA :
PEMASANGAN KEMASAN HENDAKLAH MENDAPAT KELULUSAN ARKITEK SEBELUM PEMASANGAN DENGAN DISERTAKAN BERSAMA
1) 'SHOP DRWG' DARI PEMBEKAL
2) MH–KEDUDUKAN LURANG RUJUK LUKISAN JURUTERA UNTUK KEDUDUKAN SEBENAR

KEPERLUAN BOMBA

KOD	ALAT–ALAT PENCEGAH KEBAKARAN
EL	LAMPU KECEMASAN
◁	DRY POWDER EXTINGUISHER 9KG ABC(DP)
◁	CARBON DIOXIDE EXTINGUISHER 2.3 KG (CO2)
⊗	LOCENG KECEMASAN
HR	GEGELONG HOSE
K	KELUAR
PR	PINTU RINTANGAN API
H	HYDRANT DUA HALA
FMS	FIREMEN ISOLATION SWITCH

NOTA AM

- SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA
- SEMUA KERJA–KERJA STRUKTUR, SILA RUJUK LUKISAN STRUKTUR
- SEMUA KERJA–KERJA SWIL, SILA RUJUK LUKISAN SWIL
- SEMUA KERJA–KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN, SILA RUJUK LUKISAN BEKALAN AIR.
- SEMUA KERJA–KERJA MEKANIKAL, SILA RUJUK LUKISAN MEKANIKAL.
- SEMUA KERJA–KERJA ELEKTRIKAL, SILA RUJUK LUKISAN ELEKTRIKAL.

PELANGGAN

TANDATANGAN & COP KELULUSAN PELANGGAN

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK	
Ar. ZAIRUL AZIDIN BIN BADRI	
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA	
Ar. HJH. MARIANI NOOR BT. HJ. SUHUD	
ARKITEK PENGUASA KANAN	
MOHAMMAD ISA BIN HUSSAIN (A.M.P)	
ARKITEK PENGUASA	
NARIMA HANIM BT. ZAINAL ABIDIN	
ARKITEK	
MOHAMAD HAZIMIN BIN ISMAIL	

NOTA AM

1. KONTRAKTOR ADALAH DIPERTANGGUNGJAWABKAN UNTUK MENYEMAK DAN MENENTUKAN KESEMUA UKURAN DI TAPAK BINA MENGIKUT DIMENSI YANG ADA DIDALAM LUKISAN SEBELUM MENJALANKAN SEBARANG KERJA. AKITEK MENDAKLAH DIMAKLUMKAN DENGAN SEGERA JIKA TERDAPAT SEBARANG PERBEZAAN UKURAN.

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN
	PINDAAN A 1. PERUBAHAN SAIZ TALANG AIR HUJAN KONKRIT BERTETULANG DARIPADA SAIZ ASAL 1000 X 550MM KEPADA 1350 X 350MM 2. TAMBAHAN 2 NO.S SALUR TEGAK AIR HUJAN (STAH)DI GRID 2–B DAN 2–H 3. SUDUT 'COPING' DITUKAR DARIPADA 30° KEPADA 20°	FEB 2017	

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET
- KERATAN B-B
- KERATAN C-C
- KERATAN D-D

DILUKIS	DISEMAK
Assory	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

JKR/CA/14/01/R15/060/DB/6

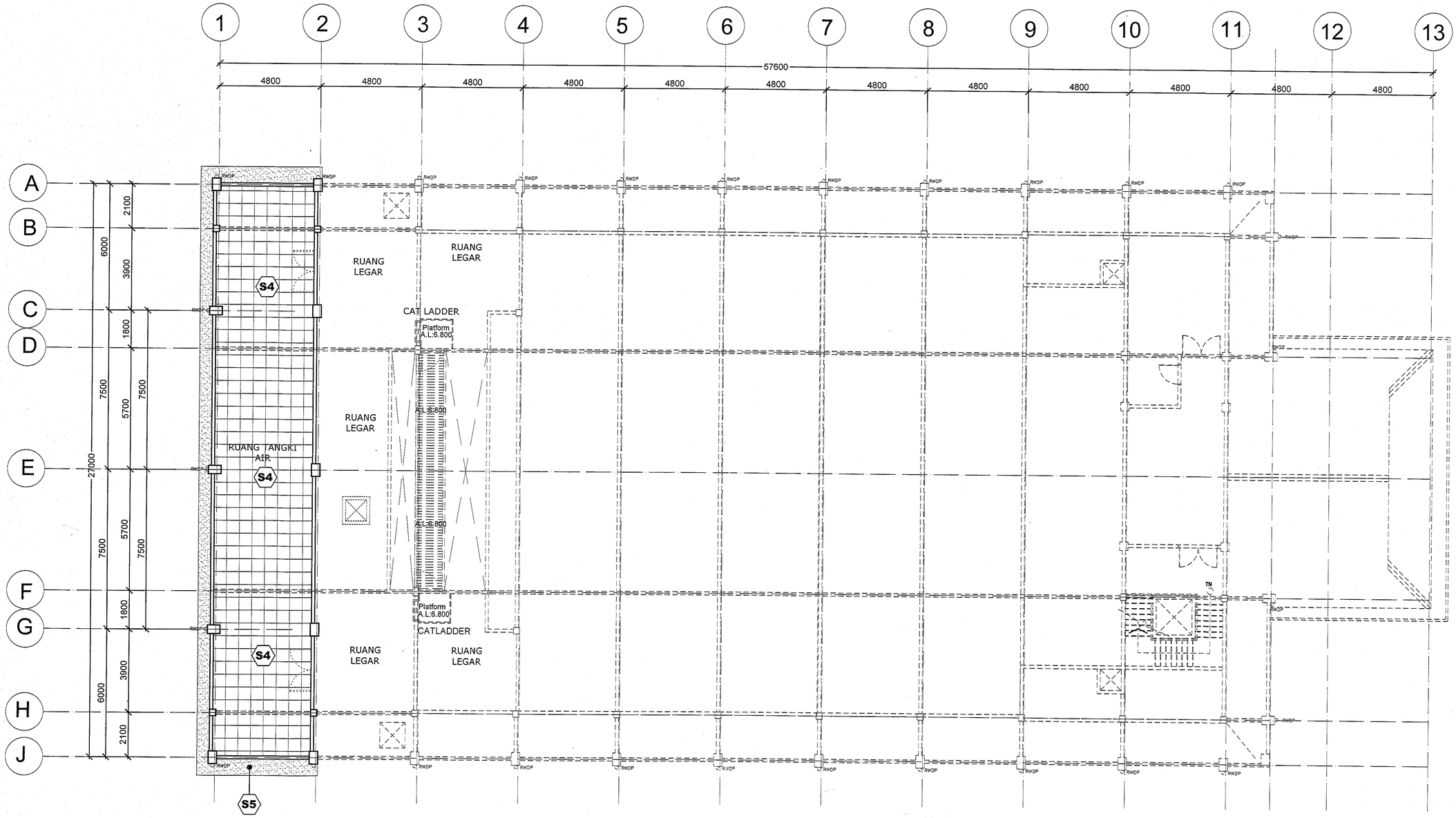
PINDAAN

A

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



PELAN PEMBALIKAN SILING ARAS TANGKI AIR
1 : 100

KEMASAN SILING

KOD	KETERANGAN
S1	BORAL UNISPAN PLASTER BOARD (CONCEALED GRID CEILING BATTEN SYSTEM DAN REKABENTUK SILING BULKHEAD/LIGHT TROUGH) 9.5mm TBL. BORAL UNISPAN PLASTER BOARD @ SETARAF DILULUSKAN LENGKAP DENGAN ; 12mm x 32mm x 0.35mm CEILING BATTEN, 25mm NEEDLE POINT BUGLE HEAD FASTENER, 50mm WIDTH PERFORATED PAPER JOINT TAPE DAN BORAL PREMIUM PREMIX JOINT COMPOUND, 150–200mm TINGGI 'CORNICE' YANG SETARA DILULUSKAN ARKITEK. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)
S2	BORAL SUSPENDED EXPOSED GRID CEILING (STANDARD – VINYL LAMINATED) 9.5mm TBL. X 1200mm X 600mm BORAL VINYL LAMINATED CEILING PANEL @ SETARAF DILULUSKAN LENGKAP DENGAN ; BORAL ANGLE BRACKET, BORAL 3mm SUSPENSION ROD, BORAL ADJUSTABLE CLIP, BORAL 3600mm MAIN TEES, BORAL 1200mm OR 600mm CROSS TEES DAN BORAL 3000mm WALL ANGLE. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)
S3	BORAL SUSPENDED EXPOSED GRID CEILING (PRE PRINTED VINYL LAMINATED WITH EDGES WRAPPED) 9.5mm TBL x 600mm x 600mm BORAL VINYL LAMINATED CEILING PANEL WITH EDGES WRAPPED @ SETARAF LENGKAP DENGAN ; BORAL ANGLE BRACKET, BORAL 3mm SUSPENSION ROD, BORAL ADJUSTABLE CLIP, BORAL 3600mm MAIN TEES, BORAL 1200mm OR 600mm CROSS TEES DAN BORAL 3000mm WALL ANGLE. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)
S4	BORAL WETSTOP (CONCEALED) 9.5mm TBL BORAL WETSTOP PLASTER BOARD SCREW FIXED ONTO RONDO KEY–LOCK CEILING SYSTEM @ SETARAF DILULUSKAN LENGKAP DENGAN ; 25mm x 22mm x 0.75 BMT RONDO TOP CROSS RAIL, 28mm x 38mm x 0.55 BMT RONDO FURRING CHANNEL, RONDO JOINER, RONDO SUSPENSION BRACEKET, RONDO SUSPENSION ROD, RONDO SUSPENSION CLIP, 25mm NEEDLE POINT BUGLE HEAD FASTENER, 50mm WIDTH BORAL PAPER JOINT TAPE DAN BORAL PREMIUM PRE MIX JOINTING COMPOUND. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)
S5	'SMOOTH CEMENT SCREED' DENGAN LAPISAN SKIM COAT DAN KEMASAN AKHIR CAT 'MASONARY EMULSION PAINT' @ SETARAF RUJUK KELULUSAN ARKITEK.
S6	DML 150g SILING JALUR ALUMINIUM 150mm LEBAR DENGAN 16mm (W) x 12mm (D) GARIS JALUR (GROOVE LINE DENGAN KEMASAN NATURAL ANODISED) @ SETARAF DENGANNYA RUJUK KELULUSAN ARKITEK.
S7	BORAL ECHOSTOP PLASTER BOARD CEILING 12mm TEBAL X 1200mm X 1200mm BORAL ECHOSTOP PLASTERBOARD (PERFORATED DESIGN SCREW FIXED ONTO RONDO KEYLOCK SYSTEM ATAU SETARAF DILULUSKAN LENGKAP DENGAN : ANGLE BRACKET (FIX TO CONCRERE), SUSPENSION ROD BRACKET (FIX TO TIMBER), 5.0mm SUSPENSION ROD, SUSPENSION CLIP TOP CROSS RAIL, TOP CROSS RAIL JOINER, JOINING CLIP, FURRING CHANNEL, FURRING CHANNEL JOINER. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)

NOTA :

1. PANEL SILING ADALAH DARI JENIS BORAL. (TO ENSURE THE PERFORMANCE OF THIS SYSTEM MEETS THE BORAL WARRANTY REQUIREMENTS AND AS TESTED SYSTEM APPROVED BY BOMBA. ONLY BORAL PRODUCTS ARE TO BE USED AND INSTALLED CORRECTLY IN ACCORDANCE TO BORAL SPESIFICATION).
2. PEMASANGAN PANEL SILING HENDAKLAH DIPASANG SECARA TETAP (CEILING BATTEN SYSTEM) ATAU SEBAGAIMANA DINYATAKAN SPESIFIKASI PEMASANGAN PEMBUAT LENGKAP DENGAN SEGALA AKSESORI YANG DILULUSKAN.
3. SAIZ PANEL SILING HENDAKLAH DIRUJUK KEPADA SPESIFIKASI PEMBUAT YANG DILULUSKAN.
4. KEMASAN AKHIR PANEL SILING HENDAKLAH DIRUJUK KEPADA SPESIFIKASI PEMBUAT YANG DILULUSKAN.
5. JENIS KEMASAN SILING ADALAH DARI JENIS YANG DINYATAKAN ATAU SETARAF DENGANNYA YANG DILULUSKAN.
6. JENIS KEMASAN SILING LIF HENDAKLAH DIRUJUK PEMBUAT DARI PIHAK LAIN YANG DILULUSKAN.

NOTA AM :

1. SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA.
2. SEMUA KERJA–KERJA STRUKTUR SILA RUJUK LUKISAN STRUKTUR.
3. SEMUA KERJA–KERJA SIVIL SILA RUJUK LUKISAN SIVIL.
4. SEMUA KERJA–KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN SILA RUJUK LUKISAN BEKALAN AIR.
5. SEMUA KERJA–KERJA MEKANIKAL SILA RUJUK LUKISAN MEKANIKAL.
6. SEMUA KERJA–KERJA ELEKTRIKAL SILA RUJUK LUKISAN ELEKTRIKAL.

PELANGGAN

TANDATANGAN & COP
KELULUSAN PELANGGAN

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA
MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK	
Ar. ZAIRUL AZIDIN BIN BADRI	
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA	
Ar. MARIANI NOOR BT. SUHUD	
ARKITEK PENGUASA KANAN	
MOHAMMAD ISA BIN HUSSAIN (A.M.P)	
ARKITEX PENGUASA	
NARIMA HANIM BT. ZAINAL ABIDIN	
ARKITEK	
MOHAMAD HAZIMIN BIN ISMAIL	

NOTA AM

1. KONTRAKTOR ADALAH DIPERTANGGUNGJAWABKAN UNTUK MENYEMAK DAN MENENTUKAN KESEMUA UKURAN DI TAPAK BINA MENGIKUT DIMENSI YANG ADA DIDALAM LUKISAN SEBELUM MENJALANKAN SEBARANG KERJA. AKITEK HENDAKLAH DIMAKLUMKAN DENGAN SEGERA JIKA TERDAPAT SEBARANG PERBEZAAN UKURAN.

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET

- PELAN PEMBALIKAN SILING ARAS TANGKI AIR

DILUKIS	DISEMAK
Maria	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

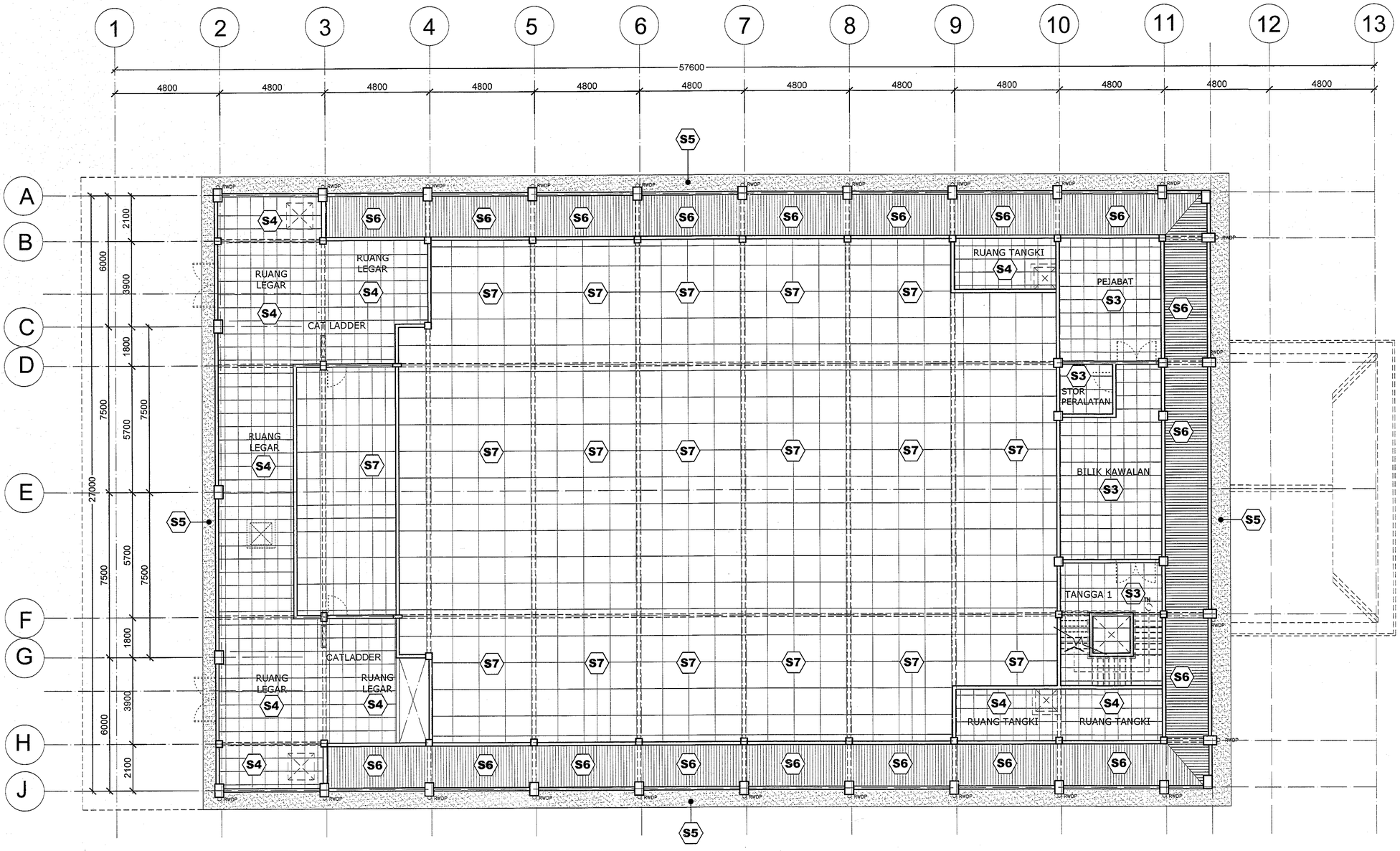
JKR/CA/14/01/R15/060/DB/9

PINDAAN

STATUS LUKISAN

COP &^TARIKH

LUKISAN PEMBINAAN



PELAN PEMBALIKAN SILING ARAS DUA
1 : 100

KEMASAN SILING					
KOD	KETERANGAN	KOD	KETERANGAN	KOD	KETERANGAN
S1	BORAL UNISPAN PLASTER BOARD (CONCEALED GRID CEILING BATTEN SYSTEM DAN REKABENTUK SILING BULKHEAD/LIGHT TROUGH) 9.5mm TBL. BORAL UNISPAN PLASTER BOARD @ SETARAF DILULUSKAN LENGKAP DENGAN ; 12mm x 32mm x 0.35mm CEILING BATTEN, 25mm NEEDLE POINT BUGLE HEAD FASTENER, 50mm WIDTH PERFORATED PAPER JOINT TAPE DAN BORAL PREMIUM PREMIX JOINT COMPOUND, 150–200mm TINGGI 'CORNICE' YANG SETARA DILULUSKAN ARKITEK. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)	S3	BORAL SUSPENDED EXPOSED GRID CEILING (PRE PRINTED VINYL LAMINATED WITH EDGES WRAPPED) 9.5mm TBL x 600mm x 600mm BORAL VINYL LAMINATED CEILING PANEL WITH EDGES WRAPPED @ SETARAF LENGKAP DENGAN ; BORAL ANGLE BRACKET, BORAL 3mm SUSPENSION ROD, BORAL ADJUSTABLE CLIP, BORAL 3600mm MAIN TEES, BORAL 1200mm OR 600mm CROSS TEES DAN BORAL 3000mm WALL ANGLE. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)	S5	'SMOOTH CEMENT SCREED' DENGAN LAPISAN SKIM COAT DAN KEMASAN AKHIR CAT 'MASONARY EMULSION PAINT' @ SETARAF RUJUK KELULUSAN ARKITEK.
S2	BORAL SUSPENDED EXPOSED GRID CEILING (STANDARD – VINYL LAMINATED) 9.5mm TBL. X 1200mm X 600mm BORAL VINYL LAMINATED CEILING PANEL @ SETARAF DILULUSKAN LENGKAP DENGAN ; BORAL ANGLE BRACKET, BORAL 3mm SUSPENSION ROD, BORAL ADJUSTABLE CLIP, BORAL 3600mm MAIN TEES, BORAL 1200mm OR 600mm CROSS TEES DAN BORAL 3000mm WALL ANGLE. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)	S4	BORAL WETSTOP (CONCEALED) 9.5mm TBL BORAL WETSTOP PLASTER BOARD SCREW FIXED ONTO RONDO KEY–LOCK CEILING SYSTEM @ SETARAF DILULUSKAN LENGKAP DENGAN ; 25mm x 22mm x 0.75 BMT RONDO TOP CROSS RAIL, 28mm x 38mm x 0.55 BMT RONDO FURRING CHANNEL, RONDO JOINER, RONDO SUSPENSION BRACEKET, RONDO SUSPENSION ROD, RONDO SUSPENSION CLIP, 25mm NEEDLE POINT BUGLE HEAD FASTENER, 50mm WIDTH BORAL PAPER JOINT TAPE DAN BORAL PREMIUM PRE MIX JOINTING COMPOUND. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)	S6	DML 150g SILING JALUR ALUMINIUM 150mm LEBAR DENGAN 16mm (W) x 12mm (D) GARIS JALUR (GROOVE LINE DENGAN KEMASAN NATURAL ANODISED) @ SETARAF DENGANNYA RUJUK KELULUSAN ARKITEK.
				S7	BORAL ECHOSTOP PLASTER BOARD CEILING 12mm TEBAL X 1200mm X 1200mm BORAL ECHOSTOP PLASTERBOARD (PERFORATED DESIGN SCREW FIXED ONTO RONDO KEYLOCK SYSTEM ATAU SETARAF DILULUSKAN LENGKAP DENGAN : ANGLE BRACKET (FIX TO CONCRERE), SUSPENSION ROD BRACKET (FIX TO TIMBER), 5.0mm SUSPENSION ROD, SUSPENSION CLIP TOP CROSS RAIL, TOP CROSS RAIL JOINER, JOINING CLIP, FURRING CHANNEL, FURRING CHANNEL JOINER. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)

NOTA :

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2. PEMASANGAN PANEL SILING HENDAKLAH DIPASANG SECARA TETAP (CEILING BATTEN SYSTEM) ATAU SEBAGAIMANA DINYATAKAN SPESIFIKASI PEMASANGAN PEMBUAT LENGKAP DENGAN SEGALA AKSESORI YANG DILULUSKAN.
3. SAIZ PANEL SILING HENDAKLAH DIRUJUK KEPADA SPESIFIKASI PEMBUAT YANG DILULUSKAN.
4. KEMASAN AKHIR PANEL SILING HENDAKLAH DIRUJUK KEPADA SPESIFIKASI PEMBUAT YANG DILULUSKAN.
5. JENIS KEMASAN SILING ADALAH DARI JENIS YANG DINYATAKAN ATAU SETARAF DENGANNYA YANG DILULUSKAN.
6. JENIS KEMASAN SILING LIF HENDAKLAH DIRUJUK PEMBUAT DARI PIHAK LAIN YANG DILULUSKAN.

NOTA AM :

1. SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA.
2. SEMUA KERJA–KERJA STRUKTUR SILA RUJUK LUKISAN STRUKTUR.
3. SEMUA KERJA–KERJA SIVIL SILA RUJUK LUKISAN SIVIL.
4. SEMUA KERJA–KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN SILA RUJUK LUKISAN BEKALAN AIR.
5. SEMUA KERJA–KERJA MEKANIKAL SILA RUJUK LUKISAN MEKANIKAL.
6. SEMUA KERJA–KERJA ELEKTRIKAL SILA RUJUK LUKISAN ELEKTRIKAL.

PELANGGAN

TANDATANGAN & COP
KELULUSAN PELANGGAN

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA
MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK
Ar. ZAIRUL AZIDIN BIN BADRI
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA
Ar. MARIANI NOOR BT. SUHUD
ARKITEK PENGUASA KANAN
MOHAMMAD ISA BIN HUSSAIN (A.M.P)
ARKITEK PENGUASA
NARIMA HANIM BT. ZAINAL ABIDIN
ARKITEK
MOHAMAD HAZIMIN BIN ISMAIL

NOTA AM

1. KONTRAKTOR ADALAH DIPERTANGGUNGJAWABKAN UNTUK MENYEMAK DAN MENENTUKAN KESEMUA UKURAN DI TAPAK BINA MENGIKUT DIMENSI YANG ADA DIDALAM LUKISAN SEBELUM MENJALANKAN SEBARANG KERJA. AKITEK HENDAKLAH DIMAKLUMKAN DENGAN SEGERA JIKA TERDAPAT SEBARANG PERBEZAAN UKURAN.

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET
- PELAN PEMBALIKAN SILING ARAS DUA

DILUKIS	DISEMAK
Mario	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

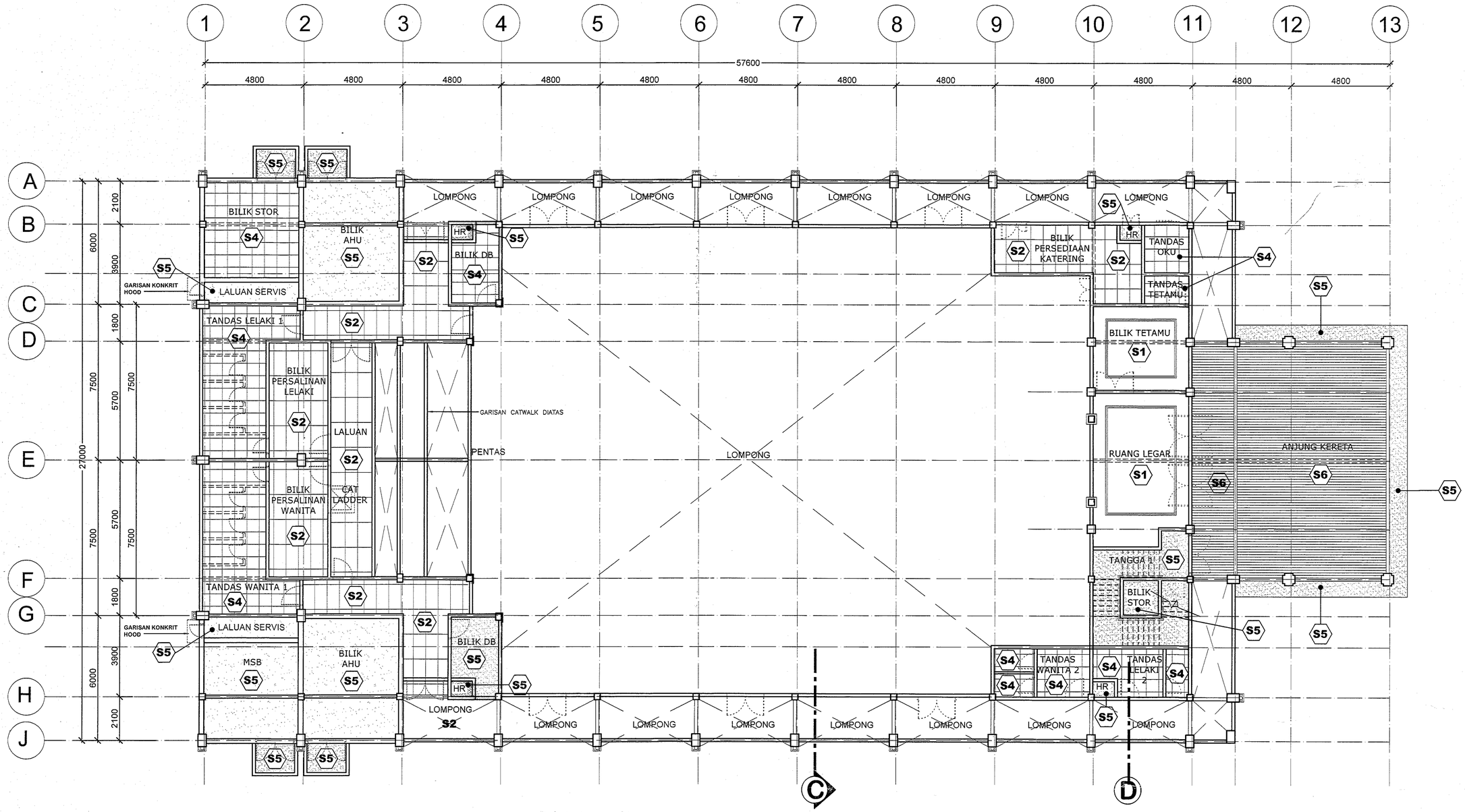
JKR/CA/14/01/R15/060/DB/8

PINDAAN

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



PELAN PEMBALIKAN SILING ARAS SATU
1 : 100

KEMASAN SILING					
KOD	KETERANGAN	KOD	KETERANGAN	KOD	KETERANGAN
S1	BORAL UNISPAN PLASTER BOARD (CONCEALED GRID CEILING BATTEN SYSTEM DAN REKABENTUK SILING BULKHEAD/LIGHT TROUGH) 9.5mm TBL. BORAL UNISPAN PLASTER BOARD @ SETARAF DILULUSKAN LENGKAP DENGAN ; 12mm x 32mm x 0.35mm CEILING BATTEN, 25mm NEEDLE POINT BUGLE HEAD FASTENER, 50mm WIDTH PERFORATED PAPER JOINT TAPE DAN BORAL PREMIUM PREMIX JOINT COMPOUND, 150–200mm TINGGI 'CORNICE' YANG SETARA DILULUSKAN ARKITEK. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)	S3	BORAL SUSPENDED EXPOSED GRID CEILING (PRE PRINTED VINYL LAMINATED WITH EDGES WRAPPED) 9.5mm TBL x 600mm x 600mm BORAL VINYL LAMINATED CEILING PANEL WITH EDGES WRAPPED @ SETARAF LENGKAP DENGAN ; BORAL ANGLE BRACKET, BORAL 3mm SUSPENSION ROD, BORAL ADJUSTABLE CLIP, BORAL 3600mm MAIN TEES, BORAL 1200mm OR 600mm CROSS TEES DAN BORAL 3000mm WALL ANGLE. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)	S5	'SMOOTH CEMENT SCREED' DENGAN LAPISAN SKIM COAT DAN KEMASAN AKHIR CAT 'MASONARY EMULSION PAINT' @ SETARAF RUJUK KELULUSAN ARKITEK.
S2	BORAL SUSPENDED EXPOSED GRID CEILING (STANDARD – VINYL LAMINATED) 9.5mm TBL. X 1200mm X 600mm BORAL VINYL LAMINATED CEILING PANEL @ SETARAF DILULUSKAN LENGKAP DENGAN ; BORAL ANGLE BRACKET, BORAL 3mm SUSPENSION ROD, BORAL ADJUSTABLE CLIP, BORAL 3600mm MAIN TEES, BORAL 1200mm OR 600mm CROSS TEES DAN BORAL 3000mm WALL ANGLE. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)	S4	BORAL WETSTOP (CONCEALED) 9.5mm TBL BORAL WETSTOP PLASTER BOARD SCREW FIXED ONTO RONDO KEY–LOCK CEILING SYSTEM @ SETARAF DILULUSKAN LENGKAP DENGAN ; 25mm x 22mm x 0.75 BMT RONDO TOP CROSS RAIL, 28mm x 38mm x 0.55 BMT RONDO FURRING CHANNEL, RONDO JOINER, RONDO SUSPENSION BRACEKET, RONDO SUSPENSION ROD, RONDO SUSPENSION CLIP, 25mm NEEDLE POINT BUGLE HEAD FASTENER, 50mm WIDTH BORAL PAPER JOINT TAPE DAN BORAL PREMIUM PRE MIX JOINTING COMPOUND. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)	S6	DML 150g SILING JALUR ALUMINIUM 150mm LEBAR DENGAN 16mm (W) x 12mm (D) GARIS JALUR (GROOVE LINE DENGAN KEMASAN NATURAL ANODISED) @ SETARAF DENGANNYA RUJUK KELULUSAN ARKITEK.
				S7	BORAL ECHOSTOP PLASTER BOARD CEILING 12mm TEBAL X 1200mm X 1200mm BORAL ECHOSTOP PLASTERBOARD (PERFORATED DESIGN SCREW FIXED ONTO RONDO KEYLOCK SYSTEM ATAU SETARAF DILULUSKAN LENGKAP DENGAN : ANGLE BRACKET (FIX TO CONCRERE), SUSPENSION ROD BRACKET (FIX TO TIMBER), 5.0mm SUSPENSION ROD, SUSPENSION CLIP TOP CROSS RAIL, TOP CROSS RAIL JOINER, JOINING CLIP, FURRING CHANNEL, FURRING CHANNEL JOINER. (RUJUK BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN)

NOTA :

1. PANEL SILING ADALAH DARI JENIS BORAL. (TO ENSURE THE PERFORMANCE OF THIS SYSTEM MEETS THE BORAL WARRANTY REQUIREMENTS AND AS TESTED SYSTEM APPROVED BY BOMBA. ONLY BORAL PRODUCTS ARE TO BE USED AND INSTALLED CORRECTLY IN ACCORDANCE TO BORAL SPESIFICATION).
2. PEMASANGAN PANEL SILING HENDAKLAH DIPASANG SECARA TETAP (CEILING BATTEN SYSTEM) ATAU SEBAGAIMANA DINYATAKAN SPESIFIKASI PEMASANGAN PEMBUAT LENGKAP DENGAN SEGALA AKSESORI YANG DILULUSKAN.
3. SAIZ PANEL SILING HENDAKLAH DIRUJUK KEPADA SPESIFIKASI PEMBUAT YANG DILULUSKAN.
4. KEMASAN AKHIR PANEL SILING HENDAKLAH DIRUJUK KEPADA SPESIFIKASI PEMBUAT YANG DILULUSKAN.
5. JENIS KEMASAN SILING ADALAH DARI JENIS YANG DINYATAKAN ATAU SETARAF DENGANNYA YANG DILULUSKAN.
6. JENIS KEMASAN SILING LIF HENDAKLAH DIRUJUK PEMBUAT DARI PIHAK LAIN YANG DILULUSKAN.

NOTA AM :

1. SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA.
2. SEMUA KERJA–KERJA STRUKTUR SILA RUJUK LUKISAN STRUKTUR.
3. SEMUA KERJA–KERJA SIVIL SILA RUJUK LUKISAN SIVIL.
4. SEMUA KERJA–KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN SILA RUJUK LUKISAN BEKALAN AIR.
5. SEMUA KERJA–KERJA MEKANIKAL SILA RUJUK LUKISAN MEKANIKAL.
6. SEMUA KERJA–KERJA ELEKTRIKAL SILA RUJUK LUKISAN ELEKTRIKAL.

PELANGGAN

TANDATANGAN & COP
KELULUSAN PELANGGAN

JKR

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA
MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK
Ar. ZAIRUL AZIDIN BIN BADRI
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA
Ar. MARIANI NOOR BT. SUHUD
ARKITEK PENGUASA KANAN
MOHAMMAD ISA BIN HUSSAIN (A.M.P)
ARKITEK PENGUASA
NARIMA HANIM BT. ZAINAL ABIDIN
ARKITEK
MOHAMAD HAZIMIN BIN ISMAIL

NOTA AM

1. KONTRAKTOR ADALAH DIPERTANGGUNGJAWABKAN UNTUK MENYEMAK DAN MENENTUKAN KESEMUA UKURAN DI TAPAK BINA MENGIKUT DIMENSI YANG ADA DIDALAM LUKISAN SEBELUM MELAKUKAN SEBARANG KERJA. AKITEK HENDAKLAH DIMAKLUMKAN DENGAN SEGERA JIKA TERDAPAT SEBARANG PERBEZAAN UKURAN.

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET
- PELAN PEMBALIKAN SILING ARAS SATU

DILUKIS	DISEMAK
Maria	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

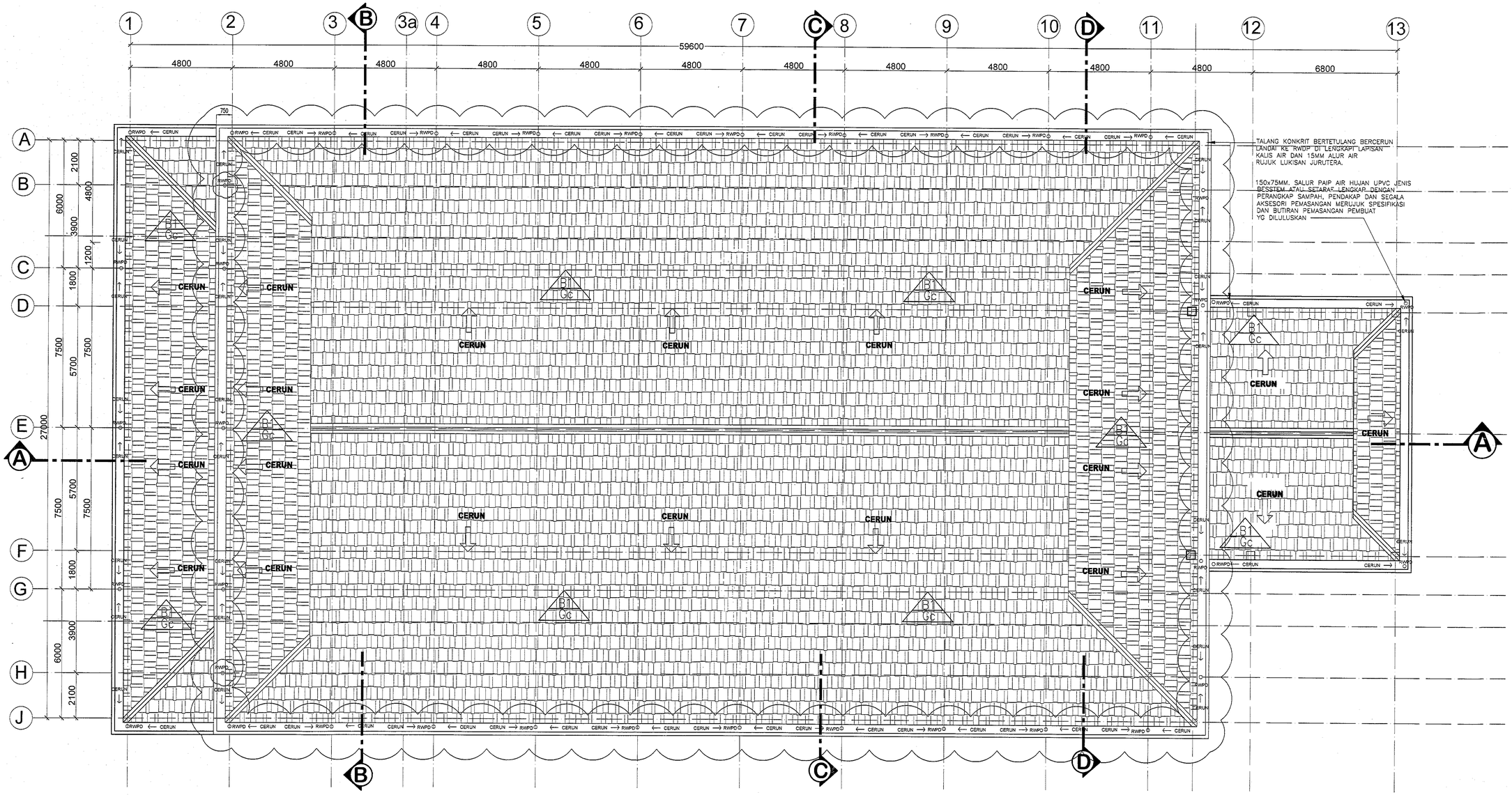
JKR/CA/14/01/R15/060/DB/7

PINDAAN

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



PELAN BUMBUNG

SPESIFIKASI-SIMBOL & KOD

LANTAI (STRUKTUR — KT | PK — ARAS LANTAI SIAP — KEMASAN)

KOD	SPESIFIKASI STRUKTUR LANTAI
KT	100mm tbl KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
KOD	**SPESIFIKASI KEMASAN LANTAI**
CP	200X200X80MM 'PRIME PAVER HEAVY DUTY CONCRETE BASED' ATAU SETARAF YANG DILULUSKAN DIPASANG DI ATAS 'MORTAR BEDDING, DAN MENCERUN LANDAI KE LONGKANG MERUJUK SPESIFIKASI DAN BUTIRAN PEMASANGAN PEMBUAT YANG DILULUSKAN JURUTERA. SAIZ, CORAK DAN WARNA MERUJUK KELULUSAN ARKITEK.
LH1	300x300X8mm JUBIN HOMOGENEOUS PERMUKAAN 'TIDAK' LICIN (MATTE) GRED A DIATAS 20MM. TBL.LEPEKAN SIMEN DGN 100mm JUBIN KAMBI, WARNA DAN CORAK DGN KELULUSAN ARKITEK.
LH2	300x300X8mm JUBIN HOMOGENEOUS 'UNGLAZED' LKP DGN 100mm KAMBI, WARNA, CORAK BERSERTA BORDER YANG DILULUSKAN ARKITEK.
TS	'AIR–THRUST' PNEUMATIC TIMBER FLOORING SYS. COMPRISING OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING WITH 2 LAYERS OF 12MM THK. WBP PLYWOOD,4.3MM THK. 'AIR–THRUST' GENUINE AIR–CELLS NATURAL RUBBER PADS AND A LAYER OF VAPOUR PROOF MEMBRANE AND C/W SANDING AND FINISHING WITH 1 COAT OF STRATE BASE AND 2 COATS OF STRATA SP. A WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO FLOOR ATAU SETARAF YANG DILULUSKAN ARKITEK
TS1	'PERSWOOD' TIMBER FLOORING SYSTEM, MATERIALS COMPRISES OF 1215 x 126 x 12MM THK. WOOD STRIP ENGINEERED HARDWOOD FLOORING AND WITH 1 LAYER 12MM WBP PLYWOOD, C/W SANDING AND FINISHING WITH 1 COAT STRATE BASE AND 2 COATS STRATA SP WATER BASED POLYURETHANE TIMBER FLOOR VARNISH TO TREAD OF 255MM WIDE AND RISER OF 150MM HIGH ATAU SETARAF YANG DILULUSKAN ARKITEK
LS	20MM TBL LEPAN SIMEN (KEMASAN AKHIR CAT EPOXY ATAU SETARAF YANG DILULUSKAN DI MSB DAN DB

NOTA :
1) LAPISAN KALIS LEMBAB DIANTARA LANTAI KONKRIT DAN "HARDCORE" ADALAH DARI JENIS "TWO–PART POLYSULPHIDE" ATAU SETARAF YG DILULUSKAN JURUTERA
2) SEMUA JUBIN DILENGKAPI DGN 'MATCHING BORDER TILES'/ 'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

DINDING (KEMASAN LUAR — STRUKTUR — KEMASAN DALAM)

KOD	SPESIFIKASI STRUKTUR DINDING
D1	230mm tbl DINDING KONKRIT TETULANG RUJUK BUTIRAN JURUTERA.
D2	125mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR
D3	100mm TBL. BLOK KONKRIT CSR AAC (AUTOCLAVED AERATED CONCRETE) DGN 5mm TBL. CSR ALC PREMIER SKIM COAT DI PERMUKAAN DALAM DAN 12mm TBL. LAPISAN CSR AAC DI PERMUKAAN LUAR

KOD	SPESIFIKASI KEMASAN LUAR DINDING
Bb	1 COAT JOTASHIELD PRIMER 07 'WATER BASE ALKALI RESISTING,PURE ACRYLIC WALL PRIMER SEALER. 2 COAT JOTASHIELD 100% ACRYLIC BASE EXTERIOR FINISH 1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMERSEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.

KOD	SPESIFIKASI KEMASAN DALAM DINDING
Bb1	1 COAT JOTASEALER 03 'WATER BASE ALKALI RESISTING, ACRYLIC WALL PRIMER SEALER' 2 COAT STRAX 'LOW VOC, 100% APEO FREE, FORMALDEHYDE FREE ACRYLIC MATT FINISH MID PERMIUM EMULSION.
Bb2	200X200X65MM TBL. JUBIN SERAMIK GILAP SETINGGI ARAS SILING LENGKAP DGN JUBIN BORDER (WARNA & CORAK DITENTUKAN OLEH ARKITEK)
Bb3	FABRITONE FABRIC ACOUSTIC WALL PANEL 'INCLUDING I NFILL AND TIMBER FRAMING TO BE FINISHED WITH 'SPEX' RANGE OF ACOUSTICALLY TRANSPARENT FABRIC WITH SOUNDTRAP MODULAR ACOUSTIC WALL PANEL IN SELECTED AREA MERUJUK BUTIRAN DAN SPESIFIKASI PEMASANGAN PEMBUAT DILULUSKAN.
Bb4	TIMBER WALL PANEL COMPRISING OF COMPOSITE PANEL WITH NYATOH TIMBER VENEER TO BE FINISH WITH CLEAR VARNISH MERUJUK BUTIRAN DAN PEMASANGAN PEMBUAT YANG DILULUSKAN.

NOTA :
2) SEMUA JUBIN DILENGKAPI DGN MATCHING BORDER TILES'/'LINING TILES' DARI JENIS SETARAF DILULUSKAN.

BUMBUNG (STRUKTUR — KEMASAN)

KOD	SPESIFIKASI STRUKTUR BUMBUNG
B1	KERANGKA KELULI LENGKAP DGN SOUND INSULATION DAN VAPOUR BARRIER. RUJUK BUTIRAN JURUTERA.
B2	BUMBUNG RATA KONKRIT TETULANG LENGKAP LAPISAN KALIS AIR RUJUK BUTIRAN JURUTERA.
KOD	**KEMASAN BUMBUNG**
Gc	"TERREAL ROMANE EVO" CLAY ROOF TILES, 12 PCS/M² COMPLETE WITH FULL ACCESSORIES TERREAL COOLMAX, CF2A–FR DESCRIBED IN (GLAZED COLOUR) CODE: MG TILES ARE TO BE ON LIGHT WEIGHT STEEL STRUCTURE SYSTEM RECOMMENDED AND APPROVED BY STRUCTURAL ENGINEER, ALL IN STRICT ACCORDANCE TO MANUFACTURER'S SPECIFICATION AND RECOMMENDATION

NOTA :
1)SEMUA PERMUKAAN BUMBUNG RATA DAN TALANG KONKRIT HENDAKLAH DILETAKAN DGN KEPINGAN KALIS TIRIS DARI JENIS 'ELASTOMERIC LIQUID MEMBRANE' YG DILULUSKAN OLEH JURUTERA.
2)PEMASANGAN MESTILAH MENGIKUT SPESIFIKASI DAN ARAHAN PENGELUAR YANG DILULUSKAN

KELENGKAPAN PINTU (KOMPONEN & JENIS PINTU — P)

KOD	KOMPONEN PINTU/SPESIFIKASI
P1-c	2400 x 2100 X 10MM PINTU PANEL KACA JERNIH DUA HALA (2 DAUN)
P1-a	2400 x 2100 PINTU PANEL KACA JERNIH dan 2000 x 600 ('TOP HUNG')
P2-c	2400 x 1800 PINTU PANEL KAYU BERHIAS (2 DAUN)
P3-c	1900 x 2100 PINTU KAYU RATA (2 DAUN)
P4-c	1200 X 2100 PINTU KAYU RATA (1DAUN) JENIS GELANGSAR (TRACK DI ATAS)
P5-a	900 x 2100 PINTU KAYU RATA DAN 900 x 600 ('TOP HUNG')
P5a-a	900 x 2100 PINTU KAYU RATA (1 DAUN)
P6-a	750 x 2100 PINTU RATA UPVC
P8-a	1200 x 2100 PINTU KAYU RATA (2 DAUN)
P9-a	1300 x 2100 PINTU KAYU RATA DAN 1300 X 600 ('TOP HUNG')
P10-a	700 x 2100 PINTU KAYU RATA DGN RAM TETAP DI BAWAH
P11-a	1800 x 2100 PINTU AKUSTIK YANG DILULUSKAN
P13-a	1800 x 2100 'COMPOSITE DOOR WITH ALUMINIUM ANTI VERMIN NETTING FIXED INSIDE' YG DILULUSKAN
FR1-a	900 x 2100 PINTU RINTANGAN API 1 JAM 2 DAUN
FR2-a	1800 x 2100 PINTU RINTANGAN API 2 JAM 2 DAUN

NOTA :
SEMUA PINTU HENDAKLAH BERBINGKAI KELULI BERONGGA RUJUK BUTIRAN PENGELUAR DGN KELULUSAN ARKITEK.
SEMUA PINTU DILENGKAPI DGN ARCHITRAVE YG DILULUSKAN

KELENGKAPAN TINGKAP (KOMPONEN & JENIS TINGKAP — T)

KOD	KOMPONEN TINGKAP/SPESIFIKASI
T1-c	3500MMX800MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2-c	2500MMX700MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS)KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T2a-c	2000MMX1200MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T3-c	600MMX900MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T4-c	600MMX2400MMX6MM TBL. (TINGKAP 'TOP HUNG' KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T5-c	1800MMX2425MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T6-c	2750MMX1400MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)
T7-c	2000MMX2000MMX6MM TBL. (TINGKAP 'TOP HUNG' DAN PANEL KACA TETAP DI ATAS) KACA GELAP DGN BINGKAI ALUMINIUM (NATURAL ANODISED)

KETERANGAN SIMBOL

KOD	SPESIFIKASI KOMPONEN
HP	RAM TETAP ALUMINIUM JENIS 'DML 85L/4V SUN LOUVERS' WITH VERTICAL CARRIER – HENDAKLAH MENGIKUT SPESIFIKASI PENGELUAR ATAU SETARA DGN. KELULUSAN ARKITEK
ST	1250 TINGGI SUSUR TANGAN BATU BATA DGN KEMASAN LUAR 'SPRAY GRANITE' JENIS ELEGANSTONE MS–336 DGN 50MM SUSUR TANGAN KELULI SEDERHANA KERAS ATAU SETARA YG DILULUSKAN ARKITEK
ST1	50MMX900MM TINGGI SUSUR TANGAN KELULI SEDERHANA KERAS DENGAN SAMBUNGAN KIMPALAN
RWDP	150 x 75mm SALUR TURUN AIR HUJAN JENIS UPVC
PL	150 x 150mm PERANGKAP LANTAI KELULI TAHAN KARAT ANTI ROACH
P	PINTU — AL ARAS LANTAI
T	TINGKAP — AJ ARAS JALAN
OKU	— AT ARAS TANAH
TAJUK BUTIRAN NO.RUJUKAN LUKISAN	RUJUKAN BUTIRAN

NOTA :
PEMASANGAN KEMASAN HENDAKLAH MENDAPAT KELULUSAN ARKITEK SEBELUM PEMASANGAN DENGAN DISERTAKAN BERSAMA
1) 'SHOP DRWG' DARI PEMBEKAL
2) MH–KEDUDUKAN LURANG RUJUK LUKISAN JURUTERA UNTUK KEDUDUKAN SEBENAR

KEPERLUAN BOMBA

KOD	ALAT–ALAT PENCEGAH KEBAKARAN
EL	LAMPU KECEMASAN
◁	DRY POWDER EXTINGUISHER 9KG ABC(DP)
◁	CARBON DIOXIDE EXTINGUISHER 2.3 KG (CO2)
⊗	LOCENG KECEMASAN
FH	GEGELONG HOSE
K	KELUAR
FD	PINTU RINTANGAN API
H	HYDRANT DUA HALA
FMS	FIREMEN ISOLATION SWITCH

NOTA AM

- SEMUA UKURAN HENDAKLAH DISEMAK MENGIKUT KESESUAIAN DI TAPAK BINA
- SEMUA KERJA–KERJA STRUKTUR, SILA RUJUK LUKISAN STRUKTUR
- SEMUA KERJA–KERJA SIVIL, SILA RUJUK LUKISAN SIVIL
- SEMUA KERJA–KERJA SISTEM BEKALAN AIR DALAMAN DAN LUARAN, SILA RUJUK LUKISAN BEKALAN AIR.
- SEMUA KERJA–KERJA MEKANIKAL, SILA RUJUK LUKISAN MEKANIKAL.
- SEMUA KERJA–KERJA ELEKTRIKAL, SILA RUJUK LUKISAN ELEKTRIKAL.

PELANGGAN

TANDATANGAN & COP KELULUSAN PELANGGAN

JKR

CAWANGAN ARKITEK
IBU PEJABAT JABATAN KERJA RAYA
MALAYSIA

PENGARAH KANAN CAWANGAN ARKITEK	
Ar. ZAIRUL AZIDIN BIN BADRI	
PENGARAH BAHAGIAN REKABENTUK DAN MULTIMEDIA	
Ar. HJH. MARIANI NOOR BT. HJ. SUHUD	
ARKITEK PENGUASA KANAN	
MOHAMMAD ISA BIN HUSSAIN (A.M.P)	
ARKITEK PENGUASA	
NARIMA HANIM BT. ZAINAL ABIDIN	
ARKITEK	
MOHAMAD HAZIMIN BIN ISMAIL	

NOTA AM

1. KONTRAKTOR ADALAH DIPERTANGGUNGJAWABKAN UNTUK MENYEMAK DAN MENENTUKAN KESEMUA UKURAN DI TAPAK BINA MENGIKUT DIMENSI YANG ADA DIDALAM LUKISAN SEBELUM MENJALANKAN SEBARANG KERJA. ARKITEK HENDAKLAH DIMAKLUMKAN DENGAN SEGERA JIKA TERDAPAT SEBARANG PERBEZAAN UKURAN.

PINDAAN

PETUNJUK	PINDAAN A	TARIKH	TANDATANGAN
	PINDAAN A 1. PERUBAHAN SAIZ TALANG AIR HUJAN KONKRIT BERTETULANG DARIPADA SAIZ ASAL 1000 X 550MM KEPADA 1350 X 550MM 2. TAMBAHAN 2 NO.S SALUR TEGAK AIR HUJAN (STAH)DI GRID 2–B DAN 2–H 3. SUDUT 'COPING' DITUKAR DARIPADA 30° KEPADA 20°	FEB 2017	

PROJEK

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

TAJUK LUKISAN

DEWAN BANKUET
- PELAN BUMBUNG

DILUKIS	DISEMAK
Assory	PN SHARIFAH
UKURAN	TARIKH
1 : 100	APR 2017

NO. LUKISAN

JKR/CA/14/01/R15/060/DB/3

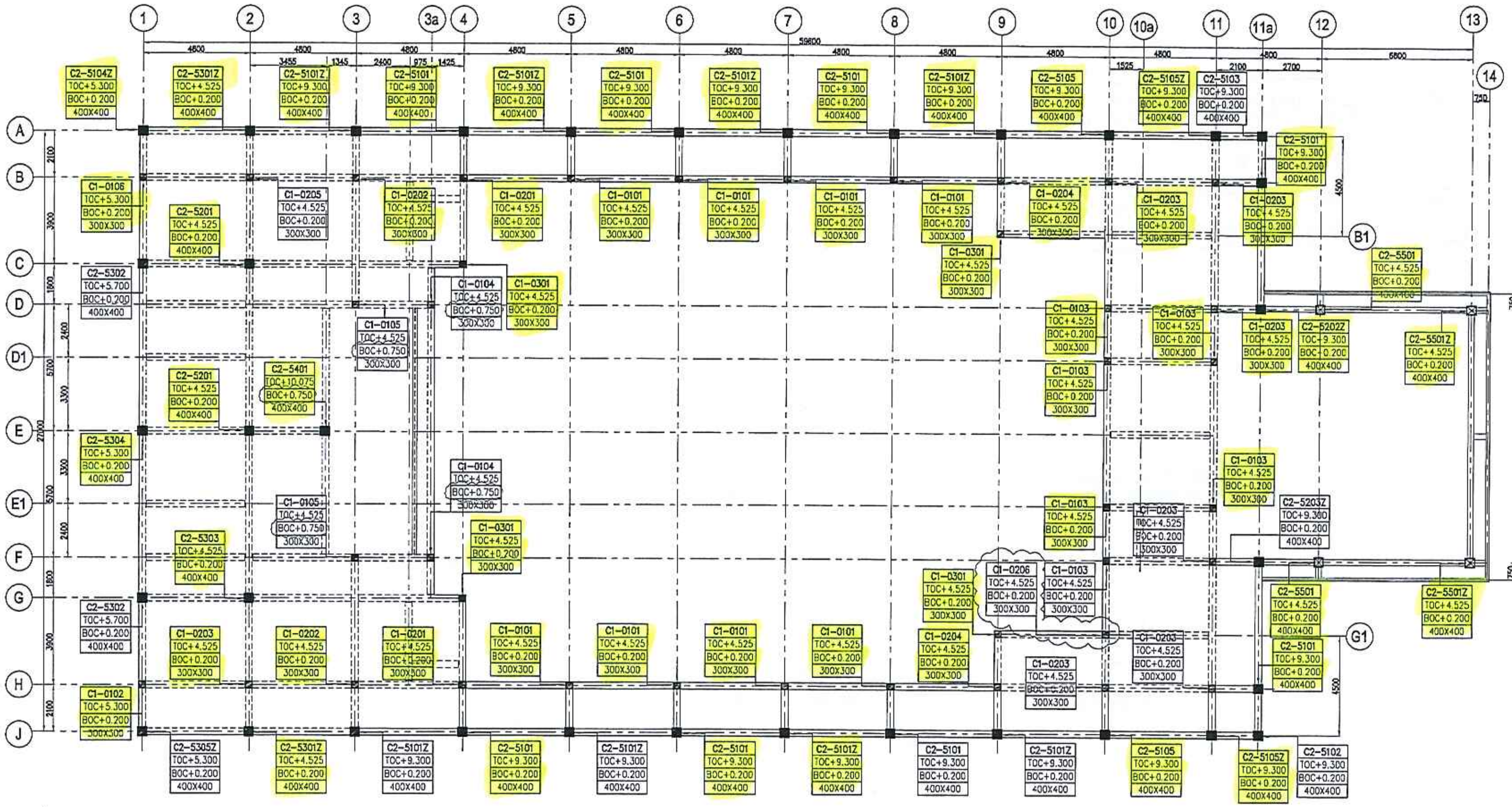
PINDAAN

A

STATUS LUKISAN

COP & TARIKH

LUKISAN PEMBINAAN



300X300

MARKING	QTY
C1-0101	8
C1-0102	1
C1-0103	6
C1-0104	2
C1-0105	2
C1-0106	1
C1-0201	2
C1-0202	2
C1-0203	7
C1-0204	2
C1-0205	1
C1-0206	1
C1-0301	4

400X400

MARKING	QTY
C2-5101	8
C2-5102	1
C2-5103	1
C2-5105	2
C2-5201	1
C2-5202	1
C2-5302	2
C2-5303	1
C2-5304	1
C2-5401	1
C2-5501	2

400X400(WITH LIGHTNING ARRESTOR SYSTEM)

MARKING	QTY
C2-5101Z	8
C2-5104Z	1
C2-5105Z	2
C2-5202Z	1
C2-5203Z	1
C2-5301Z	2
C2-5305Z	1
C2-5501Z	2

Notes:

1. MARKING WITH "Z" DENOTES COLUMN WITH LIGHTNING ARRESTOR SYSTEM.

RECEIVED
31 JAN 2018

FOR INSTALLATION

PELANGGAN:
KERAJAAN MALAYSIA

PENGARAH PROJEK:
PENGARAH JKR NEGERI PERLIS

TAJUK PROJEK:
PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

ARKITEK:
JABATAN KERJA RAYA MALAYSIA
BAHAGIAN BANGUNAN AM 1
CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR

JURUTERA SIVIL & STRUKTUR:
CAWANGAN ARKITEK
PEJABAT JABATAN KERJA RAYA MALAYSIA

KONTRAKTOR UTAMA:
PENS HOLDINGS SDN. BHD.
No. 42-44, Simpang Tiga,
Persiaran Jubli Emas,
01000, Kangar, Perlis
TEL : +604 976 5011

TAJUK PROJEK:
PEMBINAAN BANGUNAN SUK PERLIS DI MUKIM SERIAB, PERLIS.

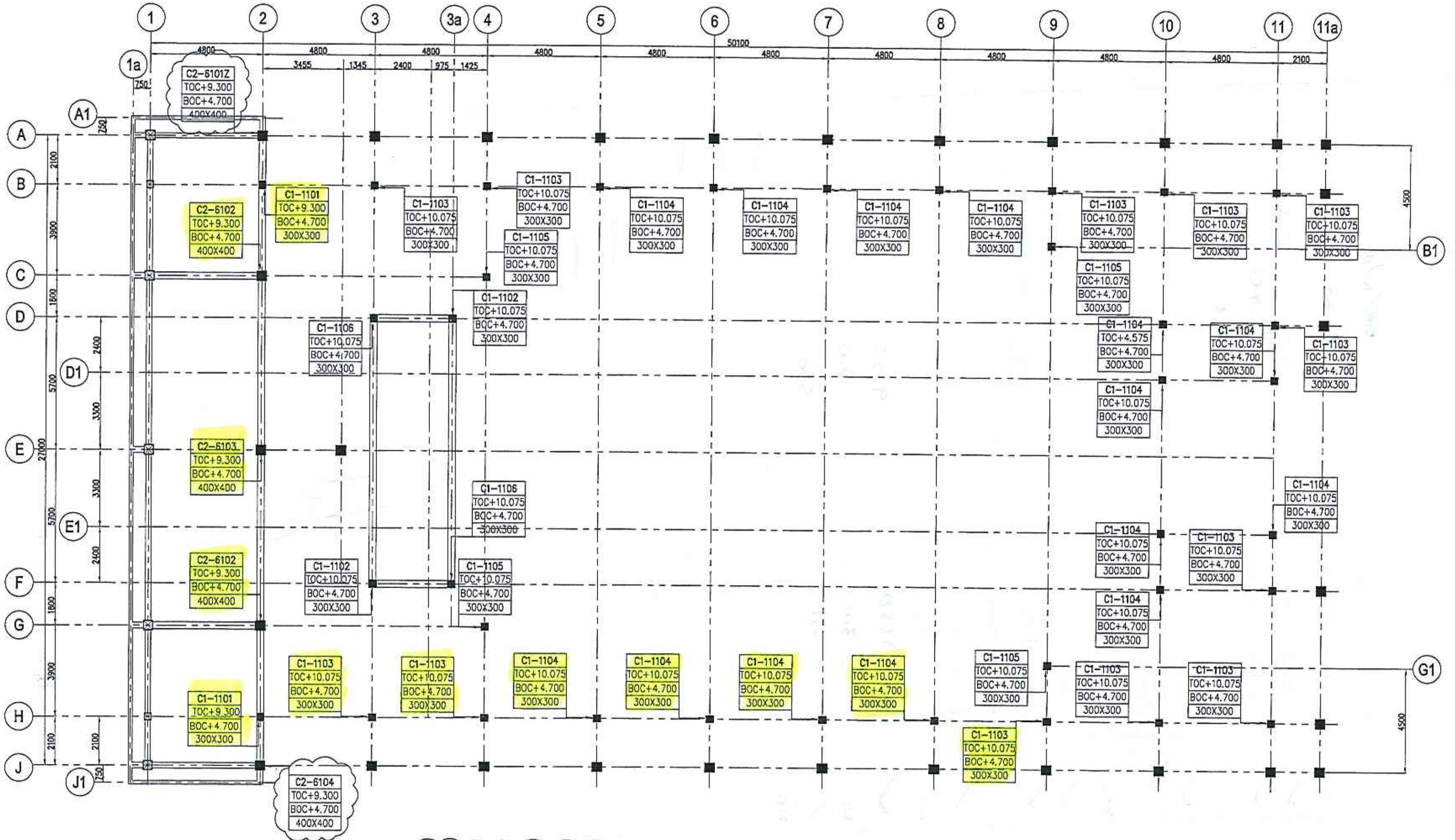
TAJUK LUKISAN:
ARAS BAWAH - ARAS 1
COLUMN INSTALLATION LAYOU

#BLOK DEWAN

PENGELUAR KOMPONEN IBS:
TERAJU PRECAST SERVICES SDN. BHD.

REV.	DATE	BY	DESCRIPTION
1	260118	PC	MARKING REVISED. AS CLOUDED
2	300118	PC	BOC REVISED. AS CLOUDED

DRAWN BY : PC
ACAD FILENAME : I-601
SCALE : 1:200
CHECKED BY : FMA
DATE : 17/11/2017
APPROVED BY: FA
DRAWING NO. 0708/E/DWN/AB/I-601
REV. 02



300X300

MARKING	QTY
C1-1101	2
C1-1102	2
C1-1103	12
C1-1104	14
C1-1105	4
C1-1106	2

400X400

MARKING	QTY
C2-6102	2
C2-6103	1

400X400(WITH LIGHTNING ARRESTOR SYSTEM)

MARKING	QTY
C2-6101Z	1
C2-6104Z	1

Notes:

1. MARKING WITH "Z" DENOTES COLUMN WITH LIGHTNING ARRESTOR SYSTEM.

RECEIVED 31 JAN 2018

FOR INSTALLATION

PELANGGAN: KERAJAAN MALAYSIA

PENGARAH PROJEK: PENGARAH JKR NEGERI PERLIS

TAJUK PROJEK: PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS.

ARKITEK: JABATAN KERJA RAYA MALAYSIA BAHAGIAN BANGUNAN AM 1 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR

JURUTERA SIVIL & STRUKTUR: CAWANGAN ARKITEK PEJABAT JABATAN KERJA RAYA MALAYSIA

KONTRAKTOR UTAMA: PENS HOLDINGS SDN. BHD.
No. 42-44, Simpang Tiga, Persiaran Jubli Emas, 01000, Kangar, Perlis
TEL : +604 976 5911

TAJUK PROJEK: PEMBINAAN BANGUNAN SUK PERLIS DI MUKIM SERIAB, PERLIS.

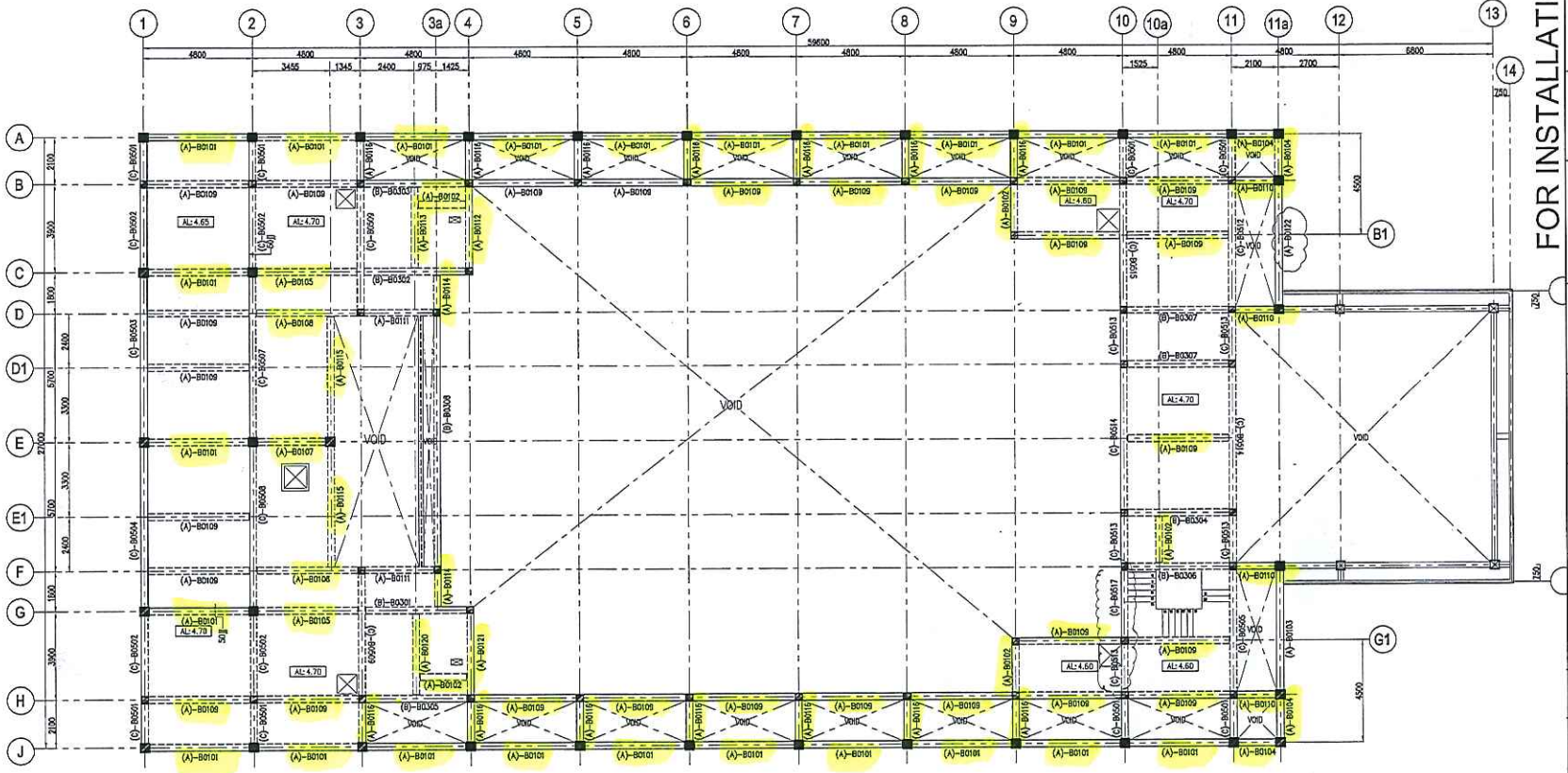
TAJUK LUKISAN: ARAS 1 - ARAS BUMBUNG 6.0m COLUMN INSTALLATION LAYOUT

#BLOK DEWAN

PENGELUAR KOMPONEN IBS: TERAJU PRECAST SERVICES SDN. BHD.

REV.	DATE	BY	DESCRIPTION
1	260118	PC	MARKING REVISED, AS CLOUDED

DRAWN BY : PC	ACAD FILENAME : I-601
SCALE : 1:200	CHECKED BY : FMA
DATE : 17/11/2017	APPROVED BY: FA
DRAWING NO: 0708/E/DWN/01/I-601	REV. 01



ARAS SATU

MARKING	QTY
(A)-B0101	23
(A)-B0102	5
(A)-B0103	1
(A)-B0104	4
(A)-B0105	2
(A)-B0106	1
(A)-B0107	1
(A)-B0108	1
(A)-B0109	27
(A)-B0110	4
(A)-B0111	2
(A)-B0112	1
(A)-B0113	1
(A)-B0114	2
(A)-B0115	2
(A)-B0116	14
(A)-B0120	1
(A)-B0121	1
(A)-B0122	1

MARKING	QTY

MARKING	QTY
(B)-B0301	1
(B)-B0302	1
(B)-B0303	1
(B)-B0304	1
(B)-B0305	1
(B)-B0306	1
(B)-B0307	2
(B)-B0308	1

MARKING	QTY
(C)-B0501	8
(C)-B0502	4
(C)-B0503	1
(C)-B0504	1
(C)-B0505	1
(C)-B0507	1
(C)-B0508	1
(C)-B0509	2
(C)-B0512	1
(C)-B0513	5
(C)-B0514	2
(C)-B0515	1
(C)-B0517	1

RECEIVED
12 FEB 2018

FOR INSTALLATION

PELANGGAN:
KERAJAAN MALAYSIA

PENGARAH PROJEK:
PENGARAH JKR NEGERI PERLIS

TAJUK PROJEK:
PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS

ARKITEK:
JABATAN KERJA RAYA MALAYSIA
BAHAGIAN BANGUNAN AM 1
CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR

JURUTERA SIVIL & STRUKTUR:
CAWANGAN ARKITEK
PEJABAT JABATAN KERJA RAYA MALAYSIA

KONTRAKTOR UTAMA:
PENS HOLDINGS SDN. BHD.
No. 42-44, Simpang Tiga,
Persiaran Jutaemas,
01000, Kangar, Perlis
TEL : +604 976 5911

TAJUK PROJEK:
PEMBINAAN BANGUNAN SUK PERLIS DI MUKIM SERIAB, PERLIS.

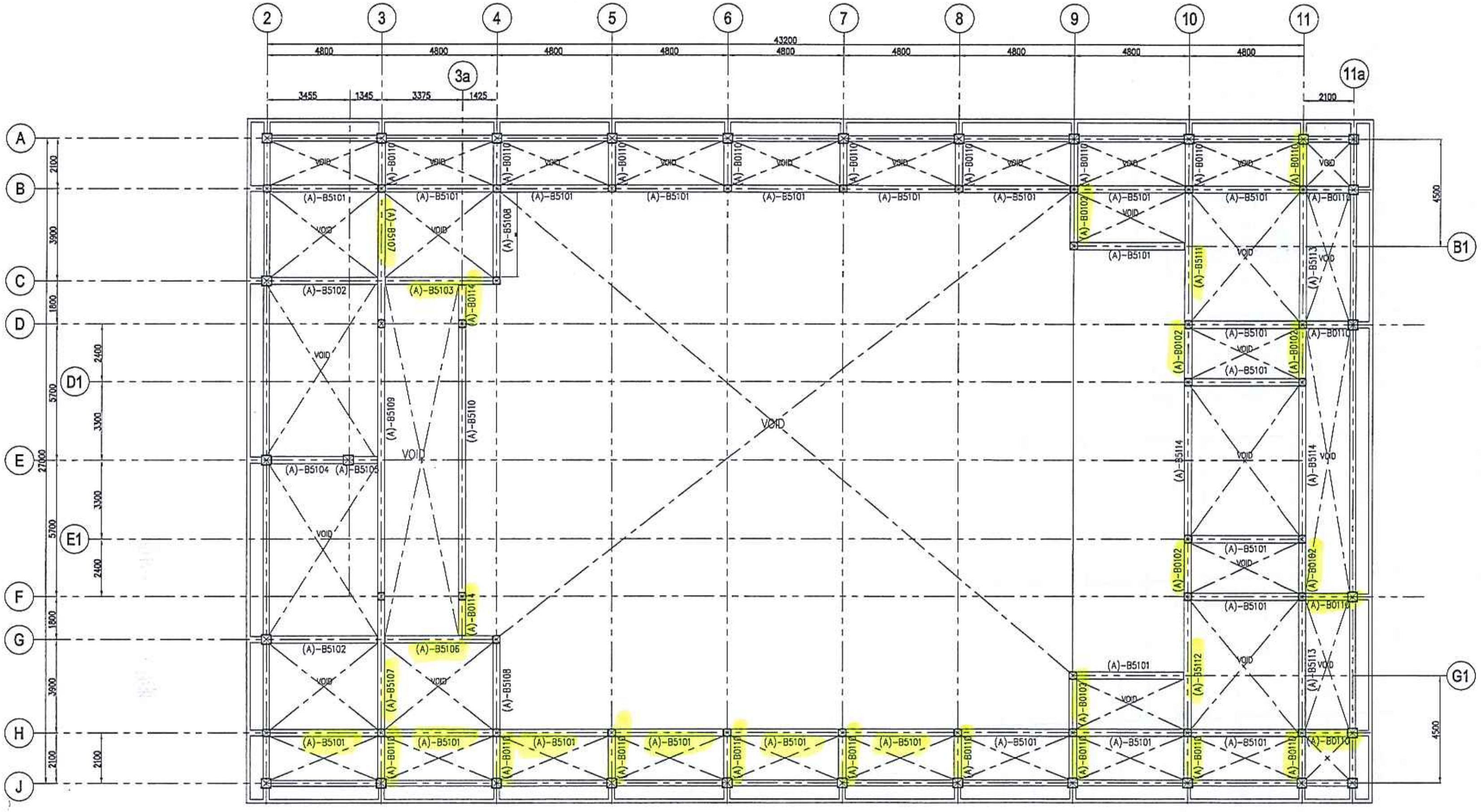
TAJUK LUKISAN:
ARAS 1
BEAM INSTALLATION LAYOUT

#BLOK DEWAN

PENGELUAR KOMPONEN IBS:
TERAJU PRECAST SERVICES SDN. BHD.

REV.	DATE	BY	DESCRIPTION
1	310118	PC	MARKING REVISED. AS CLOUDED
2	120218	PC	MARKING REVISED. AS CLOUDED

DRAWN BY : PC
ACAD FILENAME : 1-611
SCALE : 1:200
CHECKED BY : FWA
DATE : 17/11/2017
APPROVED BY: FA
DRAWING NO: 0708/E/DWN/01/1-611
REV. 02



BUMBUNG ARAS 10.0m

MARKING	QTY
(A)-B5101	24
(A)-B5102	2
(A)-B5103	1
(A)-B5104	1
(A)-B5105	1
(A)-B5106	1
(A)-B5107	2
(A)-B5108	2
(A)-B5109	1
(A)-B5110	1
(A)-B5111	1
(A)-B5112	1
(A)-B5113	2
(A)-B5114	2
(A)-B0114	2
(A)-B0110	22
(A)-B0102	6

RECEIVED 25 JAN 2018

FOR INSTALLATION

PELANGGAN:

KERAJAAN MALAYSIA

PENGARAH PROJEK:

PENGARAH JKR NEGERI PERLIS

TAJUK PROJEK:

PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS.

ARKITEK:

JABATAN KERJA RAYA MALAYSIA
BAHAGIAN BANGUNAN AM 1
CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR

JURUTERA SIVIL & STRUKTUR:

CAWANGAN ARKITEK
PEJABAT JABATAN KERJA RAYA MALAYSIA

KONTRAKTOR UTAMA:

PENS HOLDINGS SDN. BHD.
No. 42-44, Simpang Tiga,
Persiaran Jubli Emas,
01000, Kangar, Perlis
TEL : +604 976 5911

TAJUK PROJEK:

PEMBINAAN BANGUNAN SUK PERLIS DI MUKIM SERIAB, PERLIS.

TAJUK LUKISAN:

BUMBUNG ARAS 10.0m
BEAM INSTALLATION LAYOUT

#BLOK DEWAN

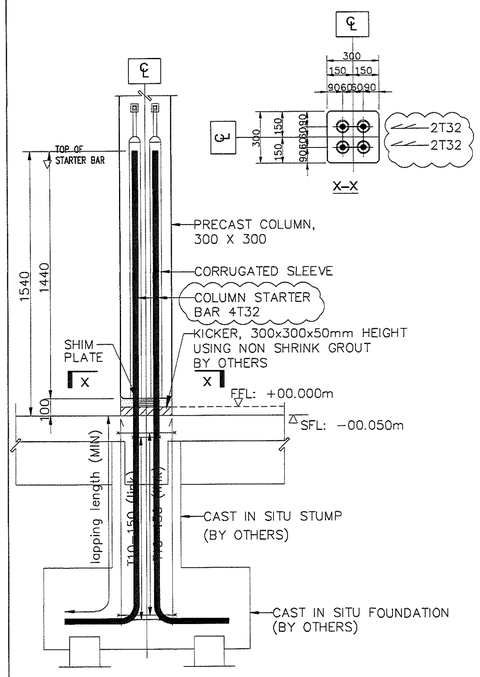
PENGELUAR KOMPONEN IBS:

TERAJU PRECAST SERVICES SDN. BHD.

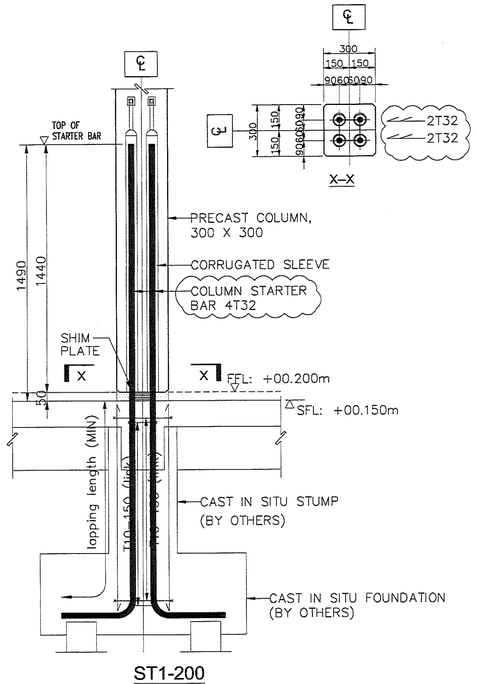
REV.	DATE	BY	DESCRIPTION

DRAWN BY : PC	ACAD FILENAME : I-611
SCALE : 1:200	CHECKED BY : FMA
DATE : 17/11/2017	APPROVED BY: FA
DRAWING NO: 0708/E/DWN/RF2/I-611	REV. 0 0

FOR CONSTRUCTION



ST1-150
(300 x 300)
(AT FFL: +00.150m)



ST1-200
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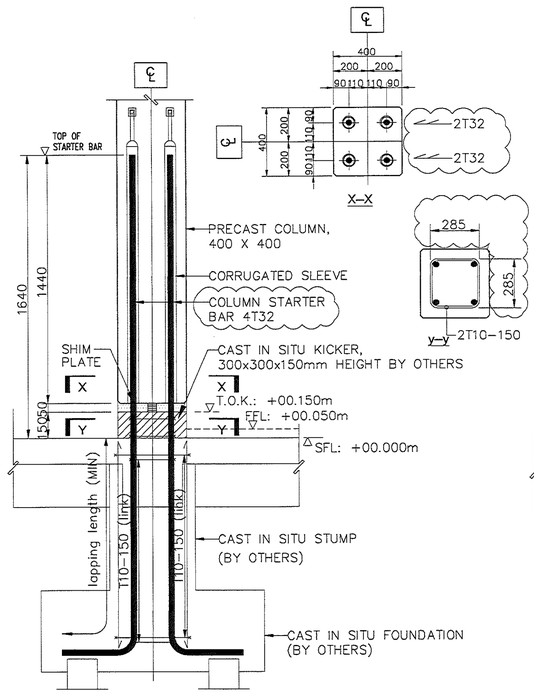
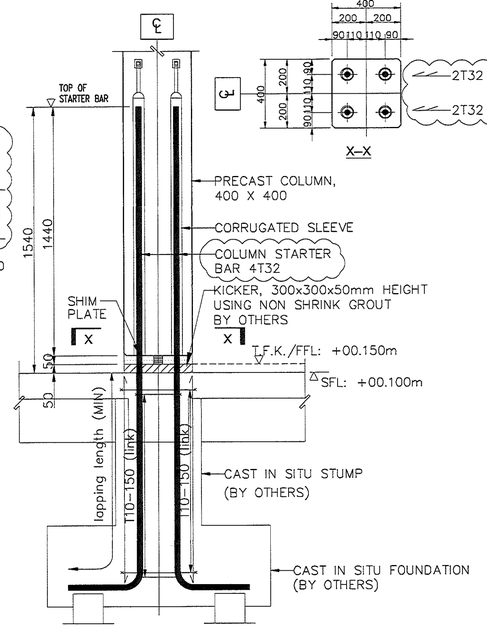
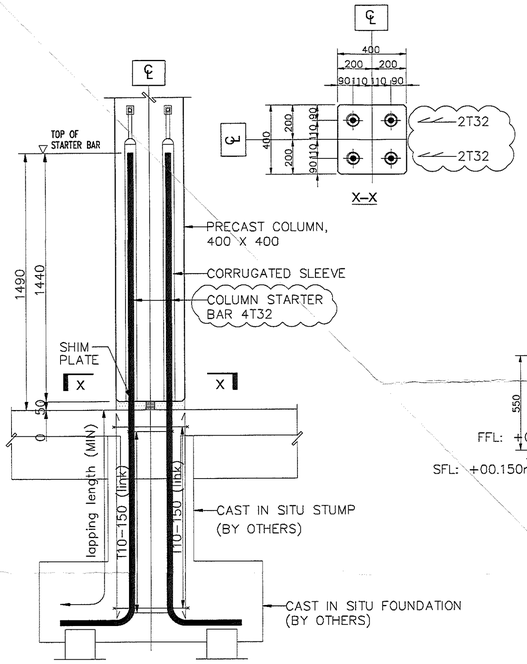
(AT FFL: +00.200m)



ST2-050
(400 x 400)
(AT FFL: +00.050m)



ST2-150
(400 x 400)
(AT FFL: +00.150m)



ST2-200
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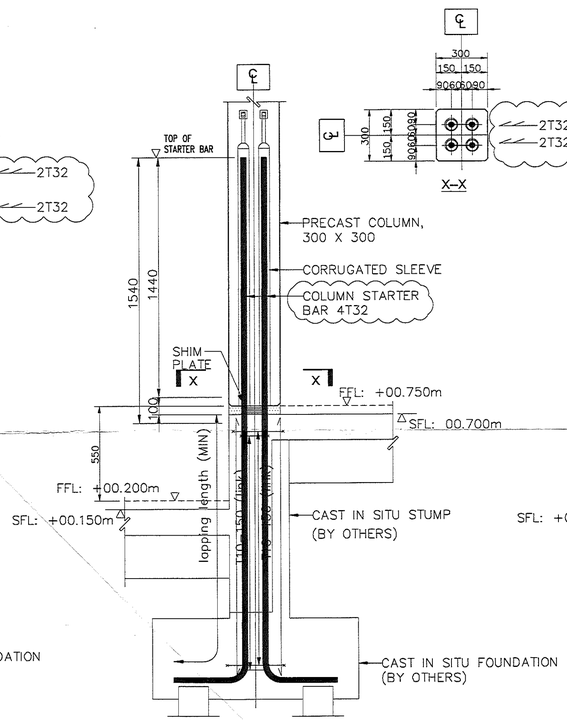
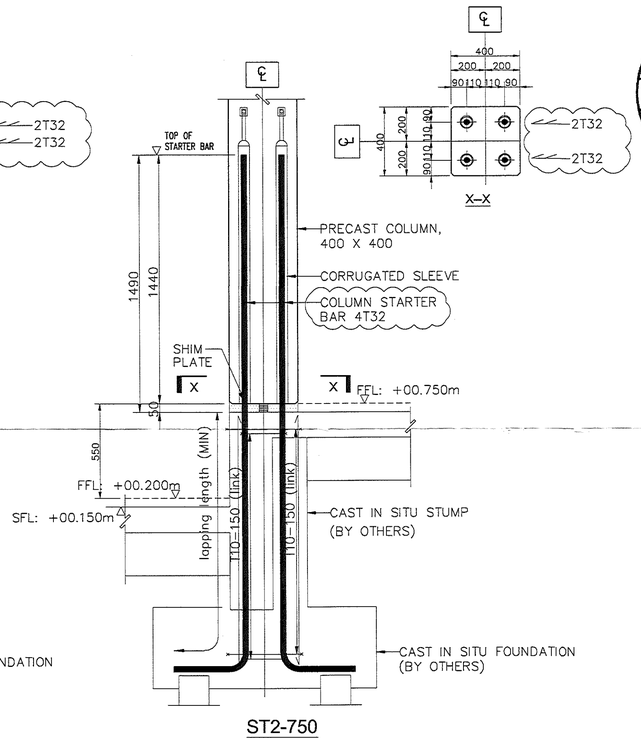
(AT FFL: +00.200m)



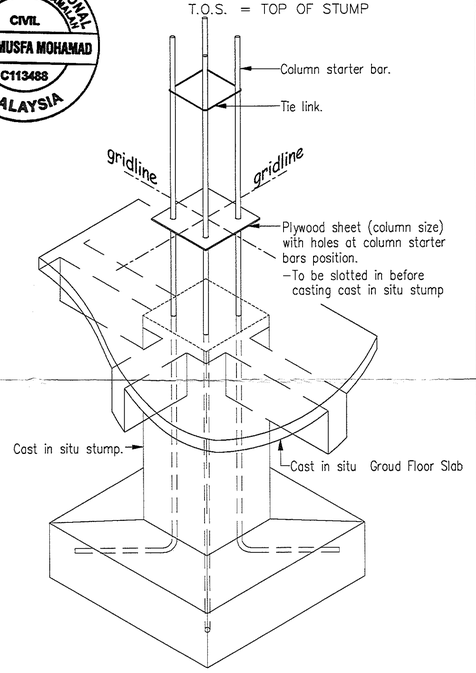
ST1-750
(300 x 300)
(AT FFL: +00.750m)



ST2-750
(400 x 400)
(AT FFL: +00.200m)

JURUTERA PROFESIONAL DENGAN PERAKUAN AMALAN
CIVIL
IR. HJ. MUSFA MOHAMAD
C113488
MALAYSIA

NOTES:
FFL = FINISH FLOOR LEVEL
SFL = STRUCTURE FLOOR LEVEL
T.O.S. = TOP OF STUMP



PROPOSED METHOD OF COLUMN STARTER BAR SETTING

PELANGGAN:
KERAJAAN MALAYSIA

PENGARAH PROJEK:
PENGARAH JKR NEGERI PERLIS

TAJUK PROJEK:
PEMBINAAN KOMPLEKS PENTADBIRAN KERAJAAN NEGERI PERLIS (BANGUNAN SUK BARU) MUKIM SERIAB, PERLIS.

ARKITEK:
JABATAN KERJA RAYA MALAYSIA
BAHAGIAN BANGUNAN AM 1
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JURUTERA SIVIL & STRUKTUR:
CAWANGAN ARKITEK
PEJABAT JABATAN KERJA RAYA MALAYSIA

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No. 42-44, Simpang Tiga,
Persiaran Jubli Emas,
01000, Kangar, Perlis
TEL : +604 976 5911

TAJUK PROJEK:
PEMBINAAN BANGUNAN SUK PERLIS DI MUKIM SERIAB, PERLIS.

TAJUK LUKISAN:
COLUMN STARTER BAR DETAILS

#BLOK DEWAN BANKUET

PENGELUAR KOMPONEN IBS:
TERAJU PRECAST SERVICES SDN. BHD.
Lot 3232 Jalan Banting/Dengkil
Bt 35 Kg Bukit Changgang
42700 Banting,
SELANGOR DARUL EHSAN
Tel:603-31491570 Fax:603-31491573

REV.	DATE	BY	DESCRIPTION
2	8.2.18	SGI	AS CLOUD, STARTER BAR SIZE REVISED
1	5.2.18	SGI	AS CLOUD, NEW TYPE ADDED
0	10.1.18	SGI	SUBMISSION FOR APPROVAL

DRAWN BY : SGI
ACAD FILENAME : M-211
SCALE : 1:35 (A3)
CHECKED BY : FMA
DATE : 05.01.2017
APPROVED BY: FA
DRAWING NO. 0708/STR/DWN/FO/M-211
REV. C 2