CENTRE OF STUDIES FOR BUILDING SURVEYING

DEPARTMENT OF BUILT ENVIRONMENT STUDIES & TECHNOLOGY

UNIVERSITY TEKNOLOGI MARA, PERAK

SERI ISKANDAR

RENOVATION WORKS OF DEWAN SERBAGUNA AT KOMPLEKS BELIA DAN SUKAN NEGERI TERENGGANU

NURUL YASARAH BINTI MOHAMAD

2018248582

BACHELOR OF BUILDING SURVEYING (HONS)

PRACTICAL TRAINING REPORT

NOVEMBER 2021 – JANUARY 2022

SUBMITTED TO

TS ZURAIHANA AHMAD ZAWAWI

CENTRE OF STUDIES FOR BUILDING SURVEYING

DEPARTMENT OF BUILT ENVIRONMENT STUDIES & TECHNOLOGY

UNIVERSITI TEKNOLOGI MARA

SERI ISKANDAR

RENOVATION WORKS OF DEWAN SERBAGUNA AT KOMPLEKS BELIA DAN SUKAN NEGERI TERENGGANU

OCTOBER 2021

This practical training report is a fulfillment of the practical training course.

PREPARED BY

NAME : NURUL YASARAH BINTI MOHAMAD

SIGNATURE : ……...

SUPERVISING LECTURER

NAME : TS ZURAIHANA AHMAD ZAWAWI

SIGNATURE : ……..

DATE: : ……

ACKNOWLEDGMENT

First of all I would like to said thank you for my supervising lecturer **Ts Zuraihana Ahmad Zawawi** and every families and friends that participate on my life and get me in this intensity and individuals who support and share idea and also helping me to be like this.

I am very thankful to **Rafa Sepakat Sdn. Bhd** company. For having given me the opportunity to undertake my four-month internship class in their working area. It was very good learning experience for me to have work in this area. I would like to convey my heartiest thanks to all staff member works.

I would also thank my mentor **En. Aziran Ismail** for this endless support at site and in his office by consulting me how do things in the site and how to write this report in outstanding manner, all teachers of building survey who brought me to my present performance and shape me like this during the last three successive years.

Before I finish I would like to give my deepest thanks to all workers from the contractor and the consultant side starting from engineers to daily laborers. Also for those who do not listed in the above but support me in different area I would like thank all.

TABLE OF CONTENT

LIST OF TABLE

LIST OF CHART

LIST OF FIGURE

LIST OF ABBREVATIONS

BQ	Bill of quality
JKR	Jabatan Kerja Raya
VO	Variation Order

CHAPTER 1

INTRODUCTION

1.0 BACKGROUND OF THE COMPANY

1.1 Introduction

Construction company was incorporated on 27 December 2007 in Malaysia under the name Rafa Sepakat SDN. BHD. with registration number of 200701042857 (800890-V). Rafa Sepakat SDN. BHD.'s business includes Construction. Rafa Sepakat SDN. BHD. is a private limited company and has been existed for 14 years.

It is involved in the management of a correspondence education school specializing in business etiquette. In addition, as a franchise development project, it also provide human resource development services for companies and management consulting of restaurants.

Rafa Sepakat SDN BHD is a dynamic organization of innovative professionals who share a common goal to render the best and most effective services to the demanding construction industry, which is sensitive to both cost containment and service levels.

Figure 1. 1: Company of Rafa Sepakat SDN. BHD. building

For this company, it has G6 categorized. It's the meaning work acquisition value limit (building/civil/mechanical) between RM5,000,001.00 to RM10,000,000 while work acquisition value limit (electric) between RM200,001.00 to RM10,000,000.00 and work acquisition value limit (facility) between RM5,000,001.00 to RM10,000,000.00.

Jadual L - *Had Nilai Perolehan Kerja Kerajaan (Bangunan/Awam/Mekanikal/Elektrical/Fasiliti)*

GRED	HAD NILAI PEROLEHAN KERJA *(Bangunan/ Awam/ Mekanikal)* (RM)	HAD NILAI PEROLEHAN KERJA *(Elektrik)* (RM)	HAD NILAI PEROLEHAN KERJA *(Fasiliti)* (RM)
G1	200,000.00 dan ke bawah	Sehingga 200,000.00	-
G2	200,001.00 hingga 500,000.00	Sehingga 500,000.00	-
G3	500,001.00 hingga 1,000,000.00	Sehingga 1,000,000.00	-
G4	1,000,001.00 hingga 3,000,000.00	200,001.00 hingga 3,000,000.00	Sehingga 3,000,000.00
G5	3,000,001.00 hingga 5,000,000.00	200,001.00 hingga 5,000,000.00	3,000,001.00 hingga 5,000,000.00
G6	5,000,001.00 hingga 10,000,000.00	200,001.00 hingga 10,000,000.00	5,000,001.00 hingga 10,000,000.00
G7	Melebihi 10,000,000.00	200,001.00 dan ke atas	Melebihi 10,000,000.00

Table 1. 1: The value limit of government work procurement

1.2 LOCATION OF COMPANY

Rafa Sepakat Sdn. Bhd. Company is located at Lot PT 32597, Tingkat 1, Jalan Kelantan, Rumah Kedai Tepoh, 21060, Kuala Terengganu, Terengganu, Malaysia. The building is surrounded by rows of shops such as restaurants, bakeries and car workshops. Apart from that, it is also close to Felda Kuala Terengganu, secondary and secondary schools. It building also. the distance of the building to the city of Kuala Terengganu takes 20 minutes with a distance of 15 kilometers while to town takes 8 minutes with a distance of 5 kilometers.

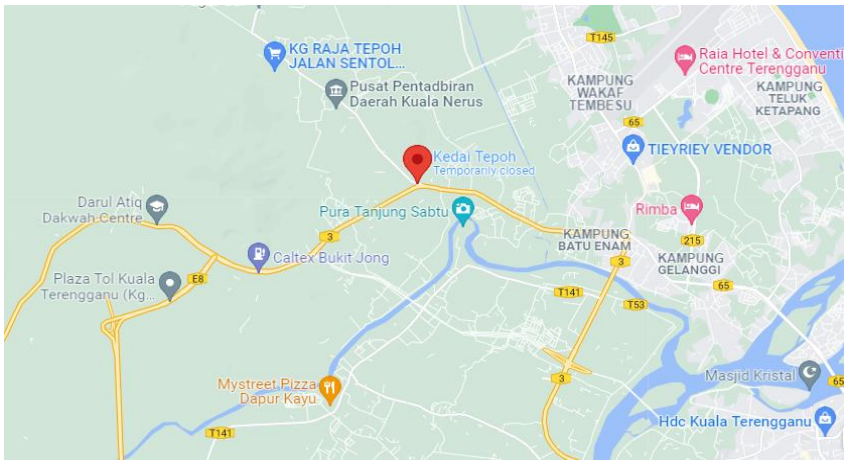


Figure 1. 2: Key plan

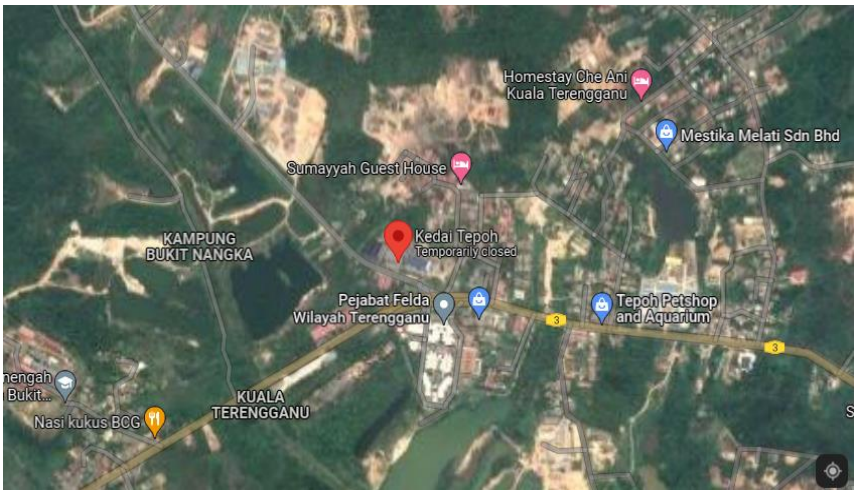


Figure 1. 3: Site plan

1.3 CHART ORGANIZATION OF RAFA SEPAKAT SDN. BHD.

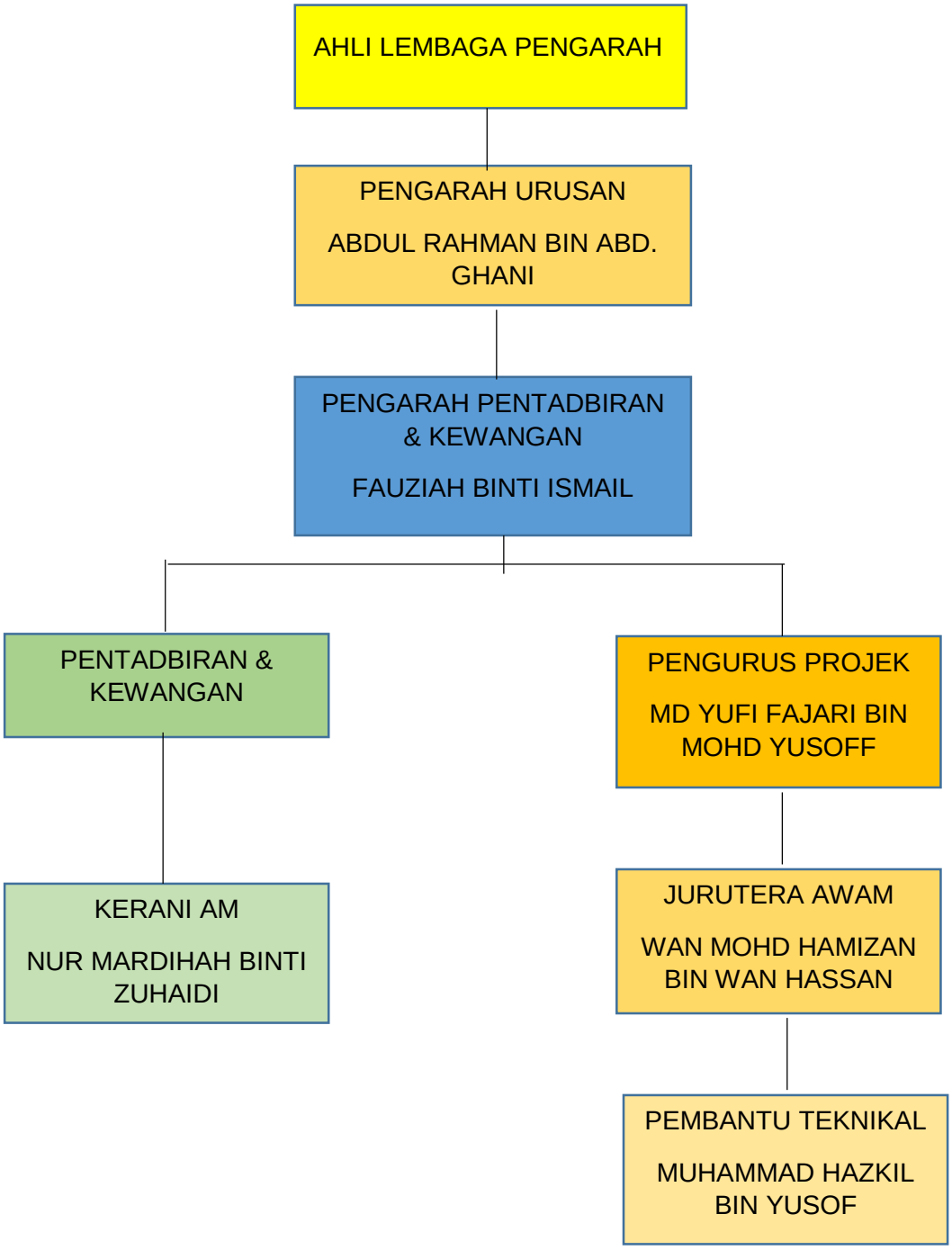


Chart 1.1: Organization of Rafa Sepakat SDN. BHD.

1.4 SUMMARY OF COMPANY INFORMATION

Name	Rafa Sepakat Sdn Bhd
Business description	Rafa Sepakat Sdn Bhd is located in Kuala Terengganu. This business is working in the following industry: Construction of buildings
Address	Lot 32597, Rumah Kedai Tepoh, Jalan Kelantan, 21060 Kuala Terengganu
Phone number Number Fax	09-662 4089 09-6623089
Engaged in	Construction of buildings
Status	Private limited company and has been existed for 14 years.
Coordinates	Latitude: 5.34999 Longitude: 103.05548
Company Registration Date	27 December 2007

Table 1. 2 The summary of company information

1.5 EXPERIENCE AND CURRENT PROJECT OF COMPANY`

BIL	DESCRIPTION	CLIENT	START	FINISH
1	Construction of a District Religious Office Building and other related works in Marang District, Terengganu Darul Iman (re -offer)	Jabatan Kerja Raya Negeri Terengganu	07/09/2009	16/1/2012
2	Terengganu State reticulation system rural water supply (BLB) project 2011/2012 zone 28	Kementerian Kemajuan Luar Bandar dan Wilayah	22/06/2011	21/02/2012
3	Proposal to build and complete hostel for 100 female and male students at Jenderis National Secondary School, Hulu Terengganu District, Terengganu Darul Iman	Kementerian Pelajaran Malaysia	26/01/2010	26/04/2011
4	Proposal to design, build and complete an affordable housing project in Kampung Batu Hampar III, Mukim Belara, Kuala Terengganu, Terengganu	Pejabat Setiausaha Kerajaan Terengganu (Perumahan)	13/09/2009	04/07/2011
5	Construct two (2) blocks of four (4) storey school buildings, one (1) one (1) storey pre-school building and other related works at Tengku Ampuan Intan National School, Hulu	Jabatan Kerja Raya Negeri Terengganu	28/04/2014	14/12/2014

	Terengganu, Terengganu (complete the abandoned works)			
6	Proposal to repair damage due to theft (vandalism) for affordable housing project in Kampung Batu Hampar III, Mukim Belara, Kuala Terengganu, Terengganu Darul Iman	PMINT	01/07/2015	25/08/2015
7	Proposed construction of Kenyir Lake, University of Malaysia Terengganu	University Malaysia Terengganu	15/12/2015	12/06/2015
8	Current project of proposal to rebuild and upgrade the existing facilities at the Komples Belia & Sukan Negeri Terengganu	Kementerian Belia & Sukan	03/03/2020	10/10/2022

Table 1. 3: Experience and current project of company

1.6 INTRODUCTION INDUSTRIAL TRAINING AND REPORT

Industrial training is a partial requirement for students in certain courses or programs at all levels of higher education in the Institute of Higher Education (IPT). To increase the level of workability of graduates, the Industrial Training program was introduced to strengthen the necessary competencies. The program provides students the learning opportunities in the working industry to receive practical experience so they can improve their marketability.

The Industrial Training program provides exposure and real time experience to student in terms of technological development, effective communication, teamwork practices, policing, procedures and regulation, professional

perspectives and reporting. In addition, this program will build a proactive spirit among students and boost their confidence in becoming a brilliant trainee.

1.7 OBJECTIVES OF INDUSTRIAL TRAINING AND REPORT

In general, the objectives of the training can be listed as below

a) To expose students to the actual working environment.
b) To give students opportunities to apply the theoretical knowledge to the actual tasks in the challenging environment.
c) To equip students to become part of the skilful professional workforce in the future.
d) To develop intellectual growth and emotional maturity of the students.
e) To create and enhance a close relationship between the university and the respective organizations for the benefits of both parties.

Meanwhile, students that went through industrial training are required to do weekly reports for their daily work as well as a monthly attendance sheet to mark their attendance. Student are required to produce an industrial report based on the work that was done during the whole of the 16-week Industrial Training program. The objectives of these reports are as follow: -

a) Produce a report on how an architect's or landscape architect's or construction industry related office is organized and operates.
b) Produce a logbook recording their experience in performing or completing given tasks.
c) Perform as a staff and a team member in dealing with others in the industry.

1.8 IMPORTANCE OF INDUSTRIAL TRAINING AND REPORT

Because of that, the industrial training provides students to have a better understanding in a working environment. Theory and practice are two things that are of same importance to be practiced. Students will be able to think outside the box when theory is different than practice. In other words, what we learn are not the same as what we experience within the working industry.

The importance of industrial training is as follows:

a. Students can be in a real working environment and get more experience.
b. Students are trained to follow the rules set by the party company.
c. Students will learn about the problems that need to be faced and they will find a way to solve the problem.
d. Student can also gain more experience about studies who are interested and make themselves better in that field.
e. Students can make themselves more comfortable to socialize with people when they tend to associate with company employees.

1.9 WORK ACTIVITIES SCHEDULE

Work schedules generally refer to the days of the week and hours on days the employee is expected to be at work. The typical work schedule is 40 hours a week, Saturday through Thursday. The normal working hours at the are 8:00 am to 5:00 pm.

Day	Time						
	8.30 am-10.00am	10.01am-10.30pm	10.31am-1.00pm	1.01pm-2.00pm	2.01pm-3.00pm	3.01pm-3.30pm	3.31pm-5.00pm
Sunday	Working time	Break time	Working time	Break time	Working time	Break time	Working time
Monday							
Tuesday							
Wednesday							
Thursday							
Friday	WEEKENDS						
Saturday	`Working time	Break time	Working time	Break time	Working time	Break time	Working time

Table 1. 4 Work activities schedule

1.10 SCOPE OF WORK DURING INTERNSHIP

1.10.1 Office Work

In my four-month internship period experience office work that are worked mostly at the site this includes some tasks performed. Such as;

i. Taking off

ii. Bill of Quantity

iii. Reading and interpreting drawings

iv. Do update a dilapidation survey for the gymnasium and administration building.

v. Prepare the variation order for perimeter, drain and apron area at *Dewan Serbaguna* & *Dewan Besar.*

i. Taking Off

For quantity of concrete at the dorm and administration block.

This is the process of preparing / defining a detailed list of all labor and materials necessary for the work and entering the items on properly dimensioned paper. The standard form used for entering the dimensions taken or scaled from drawings to determine the accurate quantity in each trade of work, except reinforcement steel, is called take off sheet or dimension paper. The main aim of this sheet for payment and cost estimation for purchasing and preparing bill of quantity.

ii. Bill of Quantity

Prepare BQ for the dorm and administration block.

The traditional purpose of bills of quantities is to act as a uniform basis for inviting competitive tenders, and to assist in valuing completed work. Bill of quantity are first designed to meet the needs of estimators, although some estimators say the bill format has changed to assist the consultants, in cost planning exercises through the widespread use of elemental bills.

A contactor can also make use of the bill of quantities in many ways, for example:

a) To plan material purchasing (note the danger in ordering from a bill: the contractor should always order materials from drawn information and the specification, making the contract administrator aware of any difference).

b) Preparing resourced programs.

c) Cost control during the contract to ensure work is within budget.

d) Data collection during construction for bonus system and feedback information for estimators.

It is the format which is used in a bill of quantity to list (include) a short description of the specification along with its measuring unit, quantity and unit prices to determine the total cost for each trade of item. In the site the bill of quantity is done by consultant with the contract document but at site we work it again for payment.

There are four clearly defined steps in preparation of Bill of Quantity:

- Taking off
- Squaring
- Abstracting
- Writing the bill off quantity

1.10.2 Site Work

The site work was the very important task for me because the internship main objective lies over her and I have gain many knowledge from the site like communication skill, handling workers, management skill etc, within four month I have the ability to see many works from the project.

The work task I have been executing at site is:

- Supervising of works
- Inspecting the worked element and how they work
- Checking the work based on the given checklist

The site work in general overlay over the supervision part so I have been working as supervisor based on the given check list that our company give to us. Every work must be checked with it is executed based on the methodology that the contractor provides to the consultant or not. If not the contractor must report the case, why didn't execute upon it.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION OF RENOVATION

Renovation is defined as the modification of any existing structure, or portion of a structure, that results in the disturbance of painted surfaces. The regulations specifically exempt lead-based paint abatement projects, as well as small projects that disturb 2 square feet or less of painted surface per component, emergency projects, and renovations affecting components that have been determined to be lead-free, as defined in the regulations, by a certified inspector or risk assessor.

The term ‘renovation’ refers to the process of returning something to a good state of repair. In the construction industry, renovation refers to the process of improving or modernising an old, damaged or defective building. This is as opposed to 'retrofitting' which is providing something with a component or feature not originally fitted, or 'refurbishment' which is a process of improvement by cleaning, decorating, or re-equipping.

Renovation (also called remodelling) is the process of improving a broken, damaged, or outdated structure. Renovations are typically either commercial or residential. Additionally, renovation can refer to making something new, or bringing something back to life and can apply in social contexts. For example, a community can be renovated if it is strengthened and revived.

2.2 RENOVATION PROCESS

The renovation process can usually be broken down into several processes:

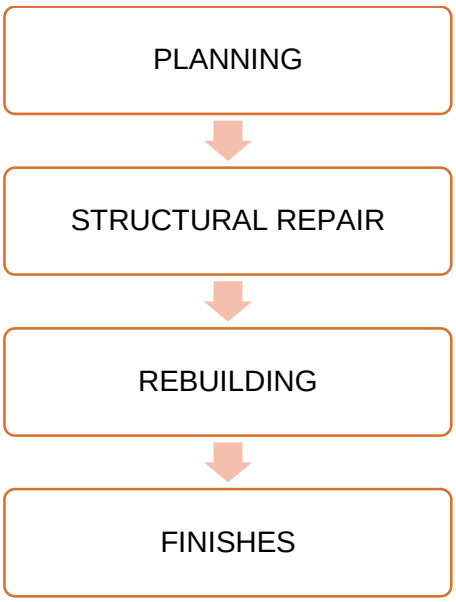


Chart 2. 1: The process of renovation

2.2.1 Planning

Planning is the process of thinking regarding the activities required to achieve a desired goal. Planning is based on foresight, the fundamental capacity for mental time travel. The evolution of forethought, the capacity to think ahead, is considered to have been a prime mover in human evolution. Planning is a fundamental property of intelligent behaviour. It involves the use of logic and imagination to visualise not only a desired end result, but the steps necessary to achieve that result.

An important aspect of planning is its relationship to forecasting. Forecasting aims to predict what the future will look like, while planning imagines what the future could look like.

Planning according to established principles is a core part of many professional occupations, particularly in fields such as management and business. Once a plan has been developed it is possible to measure and assess progress, efficiency and effectiveness. As circumstances change, plans may need to be modified or even abandoned.

2.2.2 Structural repair

A structure is an arrangement and organization of interrelated elements in a material object or system, or the object or system so organized. Material structures include man-made objects such as buildings and machines and natural objects such as biological organisms, minerals and chemicals. Abstract structures include data structures in computer science and musical form. Types of structure include a hierarchy (a cascade of one-to-many relationships), a network featuring many-to-many links, or a lattice featuring connections between components that are neighbours in space.

The technical meaning of maintenance involves functional checks, servicing, repairing or replacing of necessary devices, equipment, machinery, building infrastructure, and supporting utilities in industrial, business, and residential installations. Over time, this has come to include multiple wordings that describe various cost-effective practices to keep equipment operational; these activities occur either before or after a failure.

2.2.3 Rebuilding

Rebuilding involves removing the existing building and constructing a new one from scratch. Rebuilding is the costliest and invasive option.

Rebuilding is typically the best option if renovating or remodelling cost more than rebuilding the building. Additionally, if a building is no longer deemed structurally safe or sound by an engineer, removing the building may be the best choice. Lastly, rebuilding is perfect for those who want to change everything about the building. If you want the building to be larger or smaller than it currently is, want to change the entire layout or design, or want to put in a completely different type of building, rebuilding is the best and obvious choice.

If you have an older building that needs a new life with improved functionality and usability, or to become compliant with new building regulations, MH Williams Construction Group can help you. Our group can manage your project from start to finish. Helping you decide whether to

renovate, remodel, or rebuild with design, administrative, project supervision, project management and expert technical services. With a team of general contractors, construction managers, and engineers, we can help you with your construction project no matter the scope. Call us today to get started.

2.2.4 Finishes

Finishes are used in the final part of the construction or manufacturing process, forming the final surface of an element. They can protect the element they finish from impact, water, frost, corrosion, abrasion, and so on, and/or they can be decorative.

Finishes commonly relate to internal surfaces, but they may also be applied to external elements. They can be applied wet or dry. Some elements are self-finished, that is the final surface is part of the material the element is formed from.

The application of finishes may involve the build-up of more than one layer, which, whilst some of the layers will form the final exposed surface, they are nonetheless considered to be finishes. For example, an undercoat or primer might be applied to a wall before the final paint.

2.3 SAFETY ON RENOVATION WORK

Building renovations are dynamic and ever -changing work areas that offer unique safety challenges. These modifications can be done either by external contractors or employees from the company itself. The work may be done exclusively by one group or another, or the project may be a collaborative effort. Because of these different arrangements, it is often unclear who has the responsibility and authority to ensure safety and health regulations are followed.

2.3.1 **Electrical Safety**

Figure 2. 1: Example of electrical danger

Electrical safety is usually concerned with preventing one of three things: shock (when a current pass through the body), electrical fires, and explosions.

Shock is what happens when a person becomes electrocuted. Electricity travels through closed circuits, and people can sometimes become part of that circuit with tragic consequences. This can happen if someone touches both wires of an energized circuit, touches one wire of an unprotected circuit, or touches energized metal.

Explosions and fires can result from excessive heat, often due to excessive current or faulty wiring.

-Common Hazards for Electrical

One of the best ways to ensure electrical safety is to understand common hazards associated with it. Common electrical hazards include things like:

- Contact with live wires
- Fires due to faulty wiring
- Exposed electrical parts
- Electrical contact with flammable materials
- Improper grounding
- Interaction with overhead power lines
- Damaged wire insulation
- Overloaded circuits

Electricians should always assume wires are live. All cords, plugs, and wires should be inspected before use. If any parts are damaged or missing, halt work until replacements can be found. Similarly, all tools and equipment should be regularly inspected for damage.

2.3.2 Roof Repair Safety

Figure2. 2: Example of safety harness

The roof is one of the most critical structural components in a building. But while the roof itself may look modest, its height alone means it poses a significant

risk. The most common safety issues on roofs are related to falls from heights, unsafe work surfaces or weather.

Safety harness must be used and attached to secure anchorage points when working at height.

-Common Hazards for Roof Repairs

The most common safety hazards for roof repairs include:

• Roof stability

• Stair safety

• Weather conditions

• Roof holes

• Edge awareness

• Improper training

• Improper use of fall protection equipment

• Poor line of sight

• Field

• Roof level difference and height fall

Workers should always use appropriate safety equipment, and should always review the contractor’s safety plan in detail to ensure the work area remains clean, harnesses are used, and weather conditions are taken into account.

2.3.3 Paint Safety Tips

Figure2. 3: Scaffolding

In fact, painters are vulnerable to all sorts of hazards, from chemical hazards to slipping and falling hazards to mold and mildew.

-Common Dangers for Paint

Common dangers for painters include:

• Work at high altitudes

• Stairs, platforms or scaffolding

• Exposure to toxic substances

• Exposure to mould, fungi and bacteria

• Work in a confined space

• Slipping, tripping and falling

Like other safety issues, preparedness is the best defence for employees. Always make sure the area is adequately ventilated before working. Keep a safe distance from electrical equipment. Review safety data for all paint products and take control measures for such hazards and risks.

2.3.4 Floor Safety Tips

Debris should be cleaned immediately and tools should always be stored after use. If you want to use a power tool to sand the wood floor, make sure the area is clean and wear appropriate protective equipment.

-Common Hazards for Floors

In the floor, the most common danger is the danger of slipping, tripping and falling. Unfortunately, falls are the third leading cause of death related to unintentional injuries.

Common slip hazards include:

• Uneven surface

• Transition from dry to wet surfaces

• Loose or corrugated surfaces

Common travel hazards include:

• Cracks in the floor

• Obstacles

• Worn floor coverings

• Broken tiles

• Sudden changes in the floor surface

The best way to avoid injury is to minimize changes in floor level. Any loose parts of the floor should be securely fastened, and any uneven room transitions should be removed and replaced.

2.3.5 Personal Protective Equipment

2.3.5.1 Head Protection

Head protection is required on almost all construction sites. It is important for construction work to be organised to minimise all risks to workers, however, it is likely that hazards will still remain and everyone will be required to wear safety helmets at all times while on site.

2.3.5.2 Ear Protection

Ear protection is needed to protect workers from noise hazards. Both the exposure duration and the sound level workers are submitted to can contribute to ear damage. Even if workers are only subjected for a short duration, very high-level sounds can still pose a hazard to the ears. Therefore, it is necessary for all workers to be provided with the correct type of hearing protection for the type of work they are undertaking.

2.3.5.3 Foot and Leg Protection

Construction workers are always be expected to wear protective footwear while on site. The bones in the foot are easily damaged, with an injury to muscle or tendons potentially prohibiting normal foot movement for several months. Therefore, it is highly important to take precautions that minimise the risk of a foot injury. The ideal foot PPE encompasses steel toecaps, to protect from dropped objects, and steel midsole protection, to protect against puncture or penetration wounds from stepping on sharp objects.

2.3.5.4 Eye and Face Protection

It is important to wear eye and face protection when at risk of hazards involving chemical or metal splashes, dust, projectiles, gas, vapours and radiation. Type of eye protection is safety spectacles, goggles, face screens, face shields, visors.

2.3.5.5 Lung Protection

Lung protection is commonly required when working on a construction site as workers often encounter hazards such as dust, gases and vapours. When selecting lung PPE, it is important to ensure that the chosen piece of equipment fits the intended user properly. If incorrectly fitting respiratory PPE is selected,

an adequate seal might not be formed, leaving workers susceptible to workplace hazards. Example of lung protection is filtering face pieces, respirators, power-assisted respirators, self-contained breathing apparatus, fresh-air hose.

CHAPTER 3

CASE STUDY

3.1 BACKGROUND OF CASE STUDY

The case study is a building that was upgraded by "*Kementerian Belia Dan Sukan Negeri Terengganu"*. This project is *Cadangan Membina Semula Dan Menaiktaraf Kemudahan Sedia Ada Di Kompleks Belia Dan Sukan Negeri Terengganu*. The study conducted focused on the large hall and multipurpose hall parts that were done to make renovation on certain parts which had started on 3 March 2020 and be completed on 28 February 2022 for 120 weeks.

The renovation work is done to provide comfort to users when doing activities in the area such as sports. During the renovation work done by the contractor, RAFA Sepakat SDN BHD will be monitored by the supervising officer, namely Jurutera Daerah JKR Kuala Terengganu.

The cost for renovation work issued by the client to upgrade the multipurpose hall is RM302,000.00.

3.2 LOCATION PLAN

Figure 3. 1: The location of construction project

The construction project was located in *Jalan Pasir Panjang* , Kuala Terengganu. Terengganu.

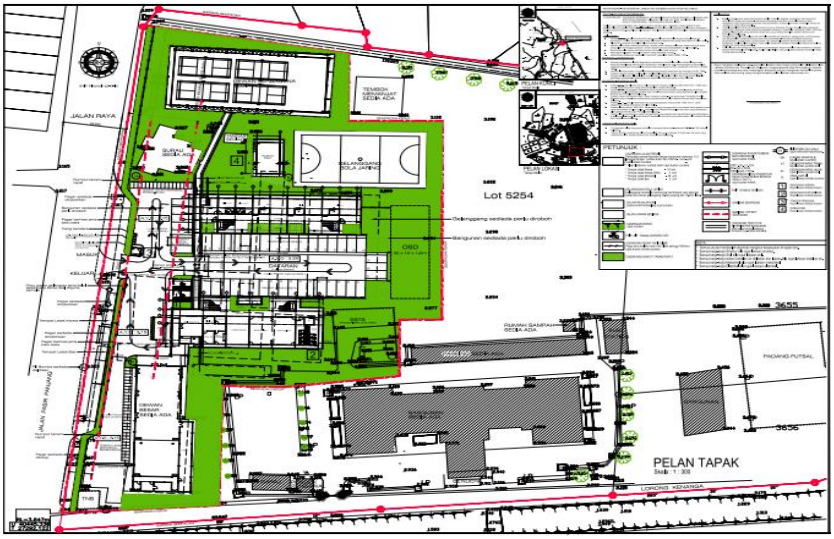


Figure 3. 2 : The area of site project

In this area, it is only one project from *Kompleks Belia Dan Sukan Negeri Terengganu* for upgrade the existing facilities in building.

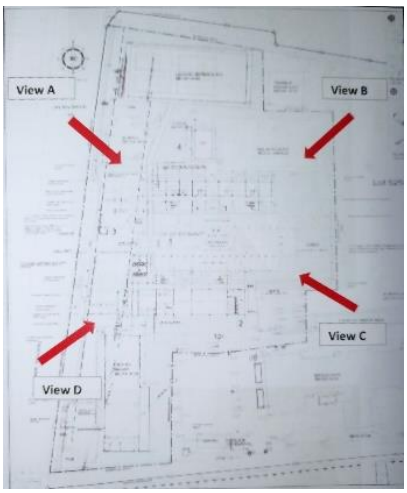


Figure 3. 3 : The view of site project

In this view was the location for project. This is the view D is located was *dewan besar*, while in view A is located was *dewan serbaguna*.

3.3 CHART ORGANIZATION PROJECT

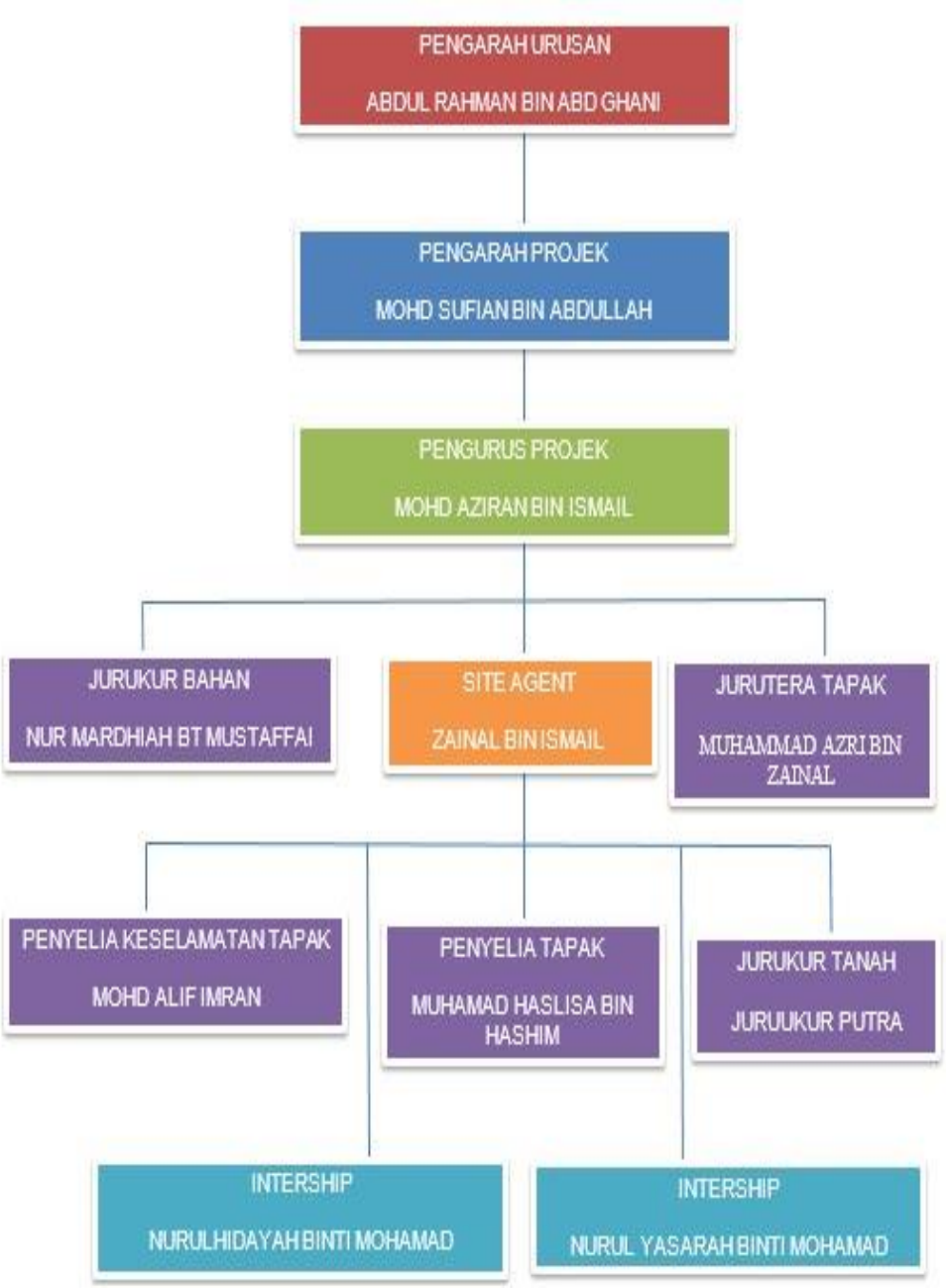


Chart 3. 1: Chart organization project

3.4 BASED LIST OF MATERIAL IN RENOVATION WORK

BIL	TYPE OF MATERIAL
1.	Concrete  Figure 3. 4 : Concrete
2.	Wood  Figure 3. 5:Wood
3.	Brick  Figure 3. 6 brick
4	Scaffolding  *Figure 3. 7 scaffolding*

Figure 3. 8 List of material in renovation work

3.5 THE RENOVATION WORK IN DEWAN SERBAGUNA

3.5.1 Dewan serbaguna

Renovation in *Dewan Serbaguna* is the process of improving a broken, damaged, or outdated structure. Before this, the function of building is to sports area for *badminton, sepak takraw* , and others. But now, this building still has the same function but there are other facilities placed in the building.

3.5.1.1 Part of Renovation Work

a) Open or Break Existing Construction

The work of opening or breaking down existing construction is intended to give new routes to users. Among the work done on the multipurpose hall is to break the two-leaf door to be used as a wall while the floor was also broken to be converted from an Elastic Court floor and converted to Air Thrut Pneumatic Floor System.

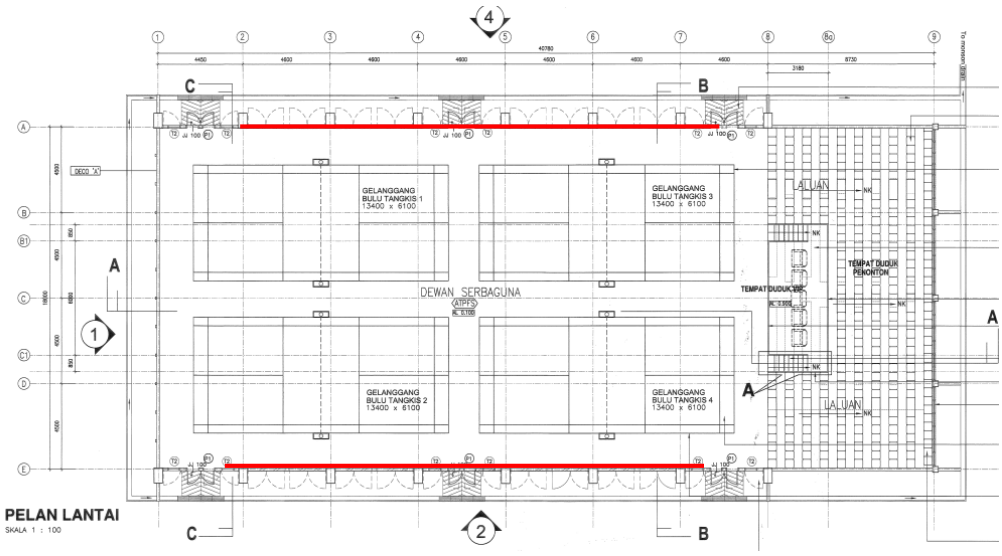


Figure 3. 9The location for break existing construction for door

This is the area renovation for the red line. Before this, the area was the existing area for two leaf door and window and now, it makes the wall for make the close space. To make the wall, it is do mansory work in wall area with used red brick, concrete, thread, and nail.

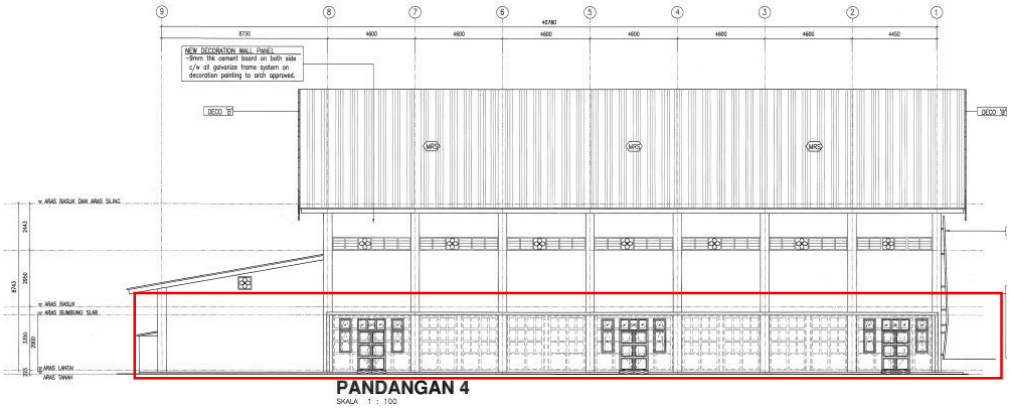


Figure 3. 10 The location binding the wall in elevation view

Figure 3. 11: The view in a construction site after masonry work

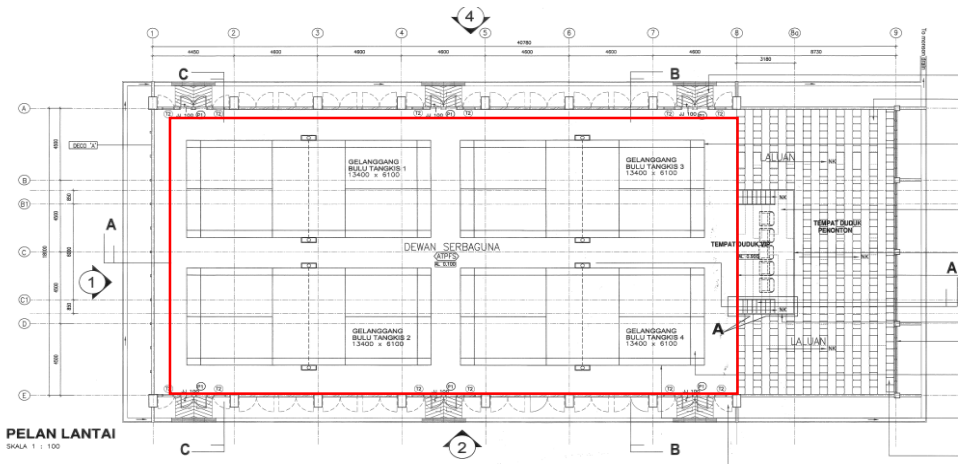


Figure 3. 12: The location for existing work for floor

This is the area renovation for the red line. Before this, material of floor is the floor elastic court floor and exchange to Air Thnut Pneumatic Floor System was the existing area in 15mm thick x 95mm sport flooring system of merbau strip with tough & groove c/w 2 layer mr plywood on 9mm the rubber pab 100mm c/c on 2 layer Juncker hp sport.Selection of water thnut Pneumatic Floor System because it is suitable to be used for sports activities. Among the features it has are: -

i. Shock Absorption.

A shock-absorbing floor minimises the risk of injuries. Shock energy is absorbed by the floor when landing after a jump, the balance will be reflected on the legs and body of athletes.

ii. Vertical Deformation.

The floor's ability to absorb shock depends on its ability to flex when exposed to a dynamic load. Test results display the floor's vertical deformation in mm when exposed to a dynamic impact equivalent to that of light jogging

iii. Ball Bounce

A good ball bounce increases the ball control and the speed of the game. Test results display the rebound achieved by the floor as a percentage of the rebound measured on a concrete floor.

iv. Friction

Correct friction is important when ball players move rapidly on the floor, and the ideal friction rating is between 80 and 110. A friction value less than 80 makes the floor too smooth, and above 110 makes the floor too rough.

v. Rolling Load

The floor's ability to withstand rolling loads is important for example where trolleys and retractable seating are used. Test results display whether the floor can withstand a rolling load of 1,500 N (approx. 150 kgs).

b) Roof Covering System

The roof covering is a system consisting of several components, the roof covering is the most visual part of the whole system and forms the bulk of the waterproofing and protection. For renovation, it is change the new material for roof . before this, it is using the material like zinc roof. when change the new material too natural volcanic stone coated steel roof tiles, consists of aluminium- zinc coated steel base. The material can high lifespan, given

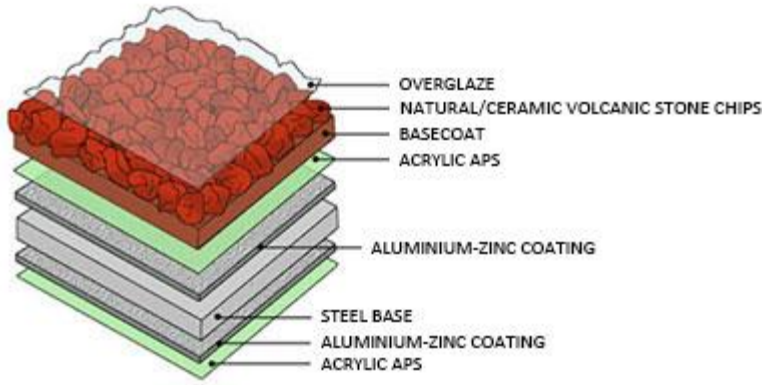


Figure 3. 13: The layers of roof covering

c) Door and Window

Next, Existing doors and windows. For existing door and window were demolished in all window and door such 10 doors in every wall and replaced with new 2 leaf doors.

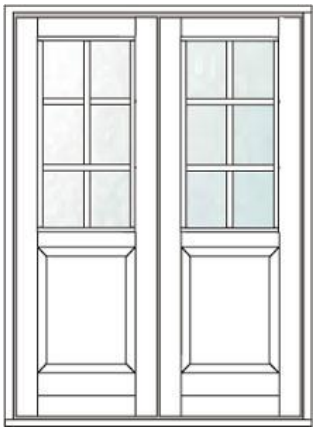


Figure 3. 14: Type of door using in Dewan serbaguna

d) Acoustic Ceiling

Before this, the multipurpose hall did not use a ceiling. it is indirect from zinc and makes the hall area more easy for heat to continue radiating to the building. Through the addition of acoustic ceiling this can make the area soundproof by 70% and feel more comfortable by 30%.

Figure 3. 15: Example acoustic ceiling

Figure 3. 16: The condition ceiling in site

e) Acoustic Treatment Performance

The addition of acoustic treatment performance is intended to prevent noise from coming out of the area.it is placed on the wall with measurements 2.5mm thick, 75mm x 75mm aluminium frame embossed on 1200mm x 1200mm x 50mm thick natural fibre high compress wall panel acoustic treatment c/w high quality micro fabric printing.

Figure 3. 17: Acoustic material

f) Railing Staircase

Staircase railing is also used for renovation work. Staircase railing is used in VIP areas to differentiate between two areas, namely audience and VIP. Among the staircase railing sizes that have been set are 100mm x 75mm x 1.5mm thick stainless steel railing of 900mm high to manufactured detail. 12mm thick tempered frameless glass to manufacture recommended.

Figure 3. 18: The example of railing staircase

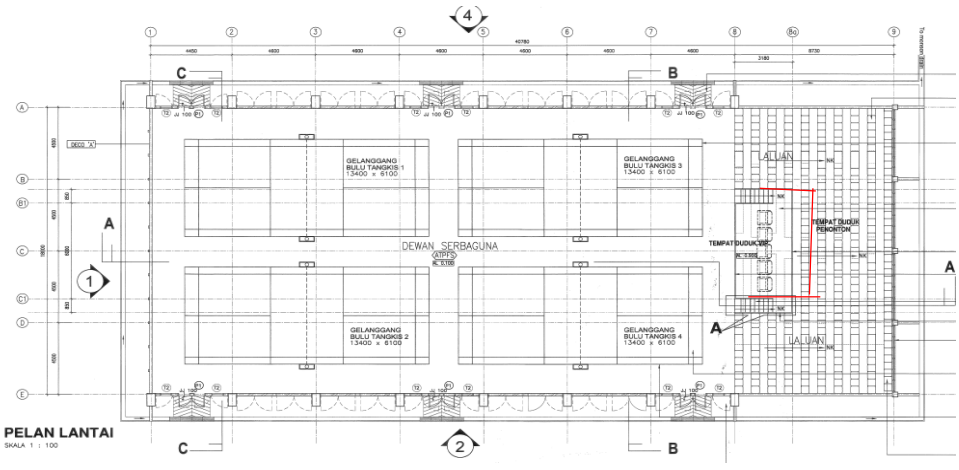


Figure 3. 19: Areas where staircase railings are placed

g) Painting Works

Painting work was also done in the renovation of the multipurpose hall. This work is done by a sub-contractor who is given the responsibility to carry out the painting work on the multipurpose hall. This painting work will be done when the client chooses the desired color. Among the themes used is the theme of youth. This theme is used to attract young people to do more sports activities.

Figure 3. 20: The example the colour used in Dewan Serbaguna

h) ARC Shell

The addition of the arc shell is intended to provide comfort to visitors when attending the multi -purpose hall. Previously, he used a concrete material coated with a layer of plaster on top. Through the conversion of the new existing audience seating with an area of 157.14 square meters can use an arc shell measuring 750mm X 450mm PU tier mounted seats system & an ergonamic seating. The design for ARC Shell is for seating position within the constraints of space and budgets. it is available as either injection or blow-moulded plastic, with an extended seat depth option. it is human fit, and decreased fatigue and discomfort through product design.

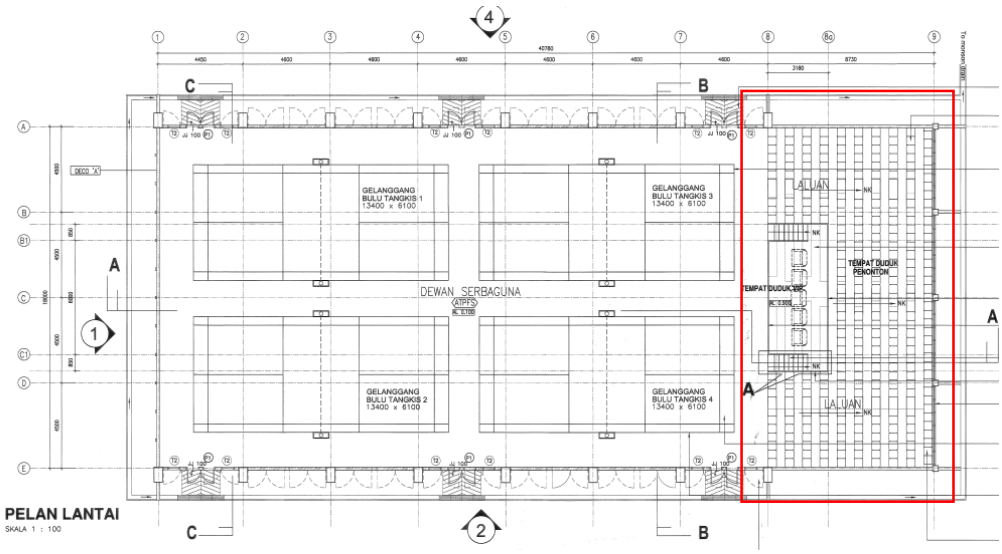


Figure 3. 21: The area to apply the ARC shell

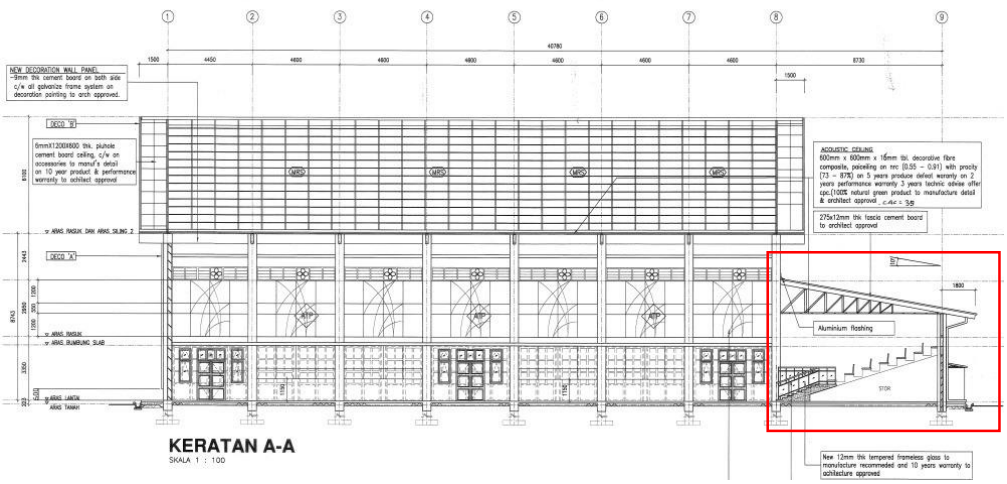


Figure 3. 22: The elevation for condition of ARC shell

Figure 3. 23: The view of before and after material exchange the material

i) VIP Seating

The contractor has taken the initiative by adding VIP seats in front of the audience seats. It is intended to give priority to superiors who come when there is a competition.

The area of VIP seating is 24.80 meter square. 900mm x 1050mm x 800mm closed depth mild follow section 50mm x 25mm x 3mm thick wooden frame upholstered with polyester then, cover with leather with fire safety (BS 5852 : 2006 section 3). 12mm thick tempered frameless glass and timber decoration strip Merbau.

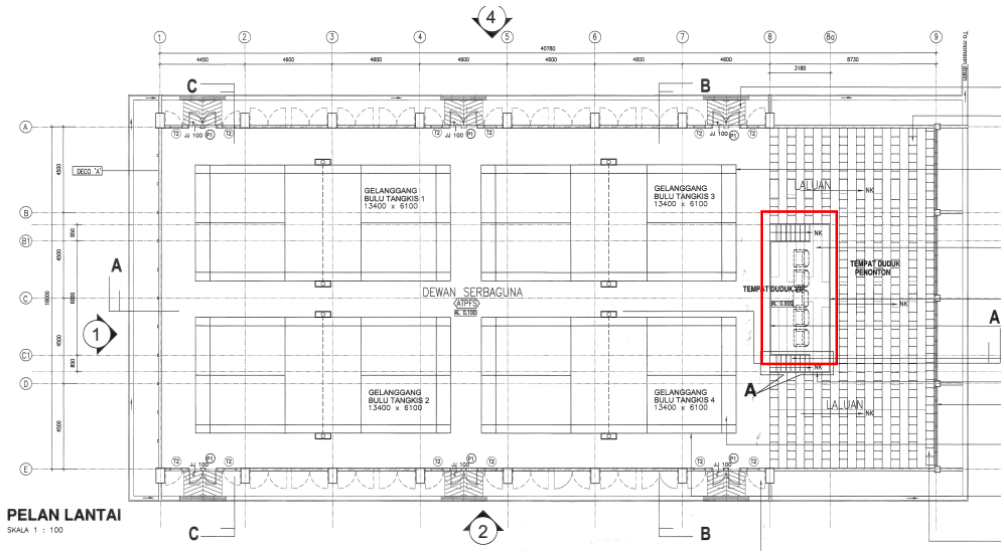


Figure 3. 24: The location for VIP seating

j) Sport Court Marking (Netball, Badminton & Takraw Court Lining)

Next, sport court marking works for netball, badminton and takraw court lining. The area of the court is 552.10 square meters with a new marking after the repair work on the floor was completed. Among the materials used for this work are 2 layers of heavy duty polyurethane (PU) acryline painting with 1 layer finish coating**.**

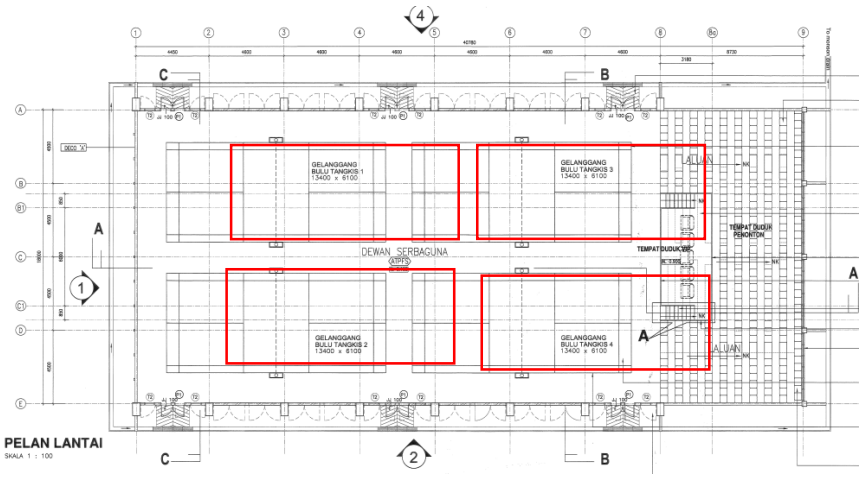


Figure 3. 25: The area for sport court marking

Figure 3. 26The example for area court marking

CHAPTER 4

ISSUE & PROBLEM AT CASE STUDY

4.1 INTRODUCTION

Every renovation project will face problems. the problem faced must find the cause of the problem. Below are some of the problems that occur during the internship in the construction project:

4.1.1 Weather

For the East Coast, November to January is the monsoon season. It will limit the work carried out on site. For construction sites, dry and hot weather conditions are ideal when working: not too hot, not too cold and free from rain. However, if the weather gets too hot and dry, this presents its own set of problems. It can be dangerous for workers to be exposed to harsh sunlight and high heat so the priority should always be to protect the workers by insisting they take regular breaks, wear the appropriate PPE and keep hydrated.

In addition, dry heat can cause more dust and airborne dirt – this is dangerous for workers to be ingesting, and can also damage some equipment, clog up filters and impact their efficiency.

The impact on the materials and site itself is also important to consider. Extreme heat can affect materials including concrete and brick; the bricks can become too dry and, therefore, contribute to weak masonry, essentially effecting the overall standard of work.

4.1.2 Rising Cost Of Materials

Rising prices of construction materials often occur such as cement, steel, and iron, aluminium and others. indirectly, it will affect to some extent the ongoing project. In addition, with the increase in the price of construction materials, this can also affect the contractor because it is difficult to estimate the cost of expenditure on materials that are constantly changing.

4.1.3 Lack Of Wormanship

The main issue faced by the management in rebuilding the 'Kompleks Belia & Sukan Negeri Terengganu' is the lack of workmanship. Indirectly, the project experienced some delays. In addition, existing employees do not provide satisfactory work results, they do not provide good quality work.

CHAPTER 5

RECOMMENDATION AND CONCLUSION

5.1 RECOMMENDATION

Based on issue and problem of case study, it have been identified throughout the internship period, there are several suggestions to be used to help solve the problem.

5.1.1 Increase The Number Of Workers

The problem of shortage of workers is inevitable. Due to the difficulty of getting local workers as manual labour, contractors had to hire foreign workers. This is because, some people are not able to accept with conditions exposed to hot weather, high places and so on. In addition, high wage demand also contributed to the difficulty in finding workers, even though the covid-19 pandemic season has limited the growing economy. Therefore, to address this problem, the company needs to immediately find employees to speed up the completion of the project and facilitate the work carried out.

5.1.2 Effective Financial Planning

A good financial plan is designed to facilitate the planning that is made. It tells will contractors be able to achieve their financial goals based on the current situation and planned future financial behaviour. With the situation of volatile supply of goods, contractors should make more effective financial planning and make calculations of adequate material supply.

5.1.3 Making The Planning During Raining Season

The project manager should ensure that the work process is well organized by the rainy season. As the project manager needs to plan and arrange work schedules that involve exposure to rain or lightning are implemented in advance before the rainy season so that work is not interrupted. For example, the frame structure of the building will be built first and make sure

it is ready before the rainy season to make it easier for workers to do work even in the rainy season by doing work such as binding bricks, installing frame doors and others can be done during that season.

5.2 CONCLUSION

The internship is a bridge between theoretical knowledge and the practical or the reality work at the field of construction. We all who take the internship class go to companies that already working either as a consultant or a contractor. The responsibilities of the hosting company are to teach student and shape them in the four month as real site workers. My hosting company is a consultant team and they help me and my friend who took the internship session in this company is acquiring knowledge.

This program played an important role to break the conventional thought that field works can be only implemented by students who hold a degree or people who have an experience in building construction. We were able to acquire a high level of confidence to deal with problems that arise in a building construction.

Since I involve my internship session in the consulting side Rafa Sepakat Sdn. Bhd. Of the '*Kompleks Belia & Sukan Negeri Terengganu'*. I get an opportunity to work in the different party of the construction work which helps me to gain more knowledge by seeing what they work in their own office and what is their main responsibilities to the client and also each other.

Through this industrial training, I was able to cultivate the spirit of cooperation, comradeships and also improving my social skills as well as communicate between company staffs. I am very proud to be able to join this company as an industrial training student as well as to have the opportunity to be a colleague with a professional and much more experienced staff. This was golden opportunity for me to gain as much knowledge as possible with their help. Every new thing I have learnt have been kept as a personal note to myself for the future. At least, I was able to complete this training filled with knowledge in me and not in vain of not acquiring something throughout the training.

In conclusion, the industrial training is very important for every student because they are useful to be applied in the working environment later on. With early exposure during the industrial training, students can improve their skills, knowledge and even self-graduate with trustworthy and responsible characteristics. As well as being able to indirectly improve performance.

REFERENCES

1) https://www.google.com/search?q=red+brick&sxsrf=APq-WBvsgRGdPTkj-lGI1JcEUK9vwtqBew:1644646686180&source=lnms&tbm=isch&sa=X&sqi=2&ved=2ahUKEwiEwYqswvn1AhUaHrkGHRe3CJUQ_AUoAXoECAIQAw ,Sunday,2 January 2022, 4:04 pm

2) https://www.viking.ee/en/doors/door-types Sunday,2 January 2022, 5:03pm

3) https://www.sciencedirect.com/topics/engineering/renovation Monday,3 January 2022, 6:12pm

4) https://www.fercoseating.com/products/arc-series-sports/arc-shell_stadium_seat/ Monday,3 January 2022,8:10pm

APPENDIX

A) The external wall plaster work

B) The view in Dewan Serbaguna

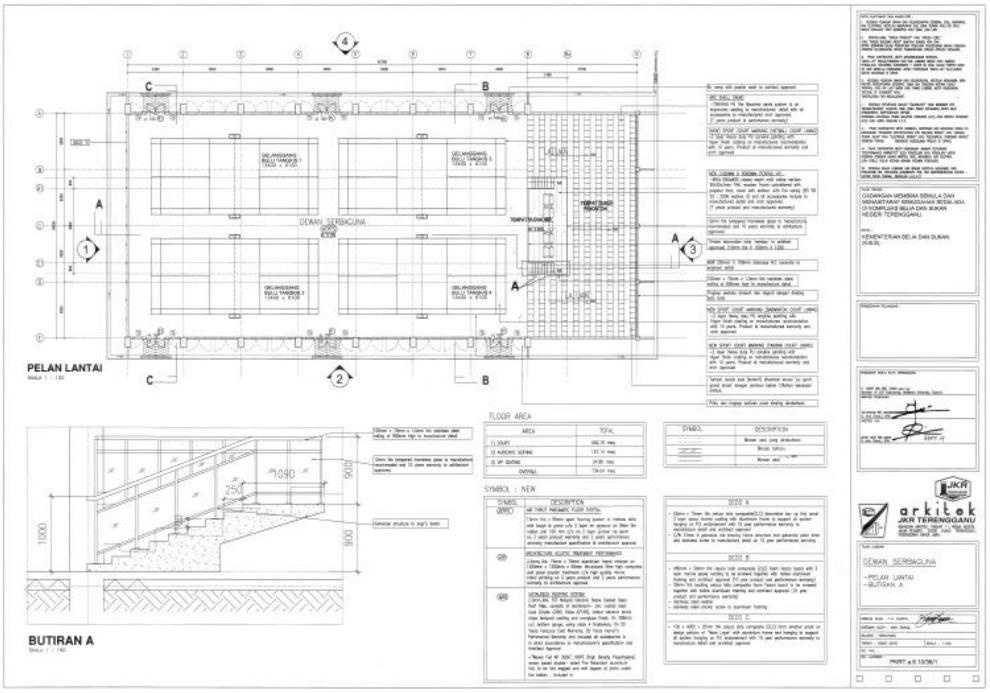
View font – left side

C) The internall wall plaster work back spectator

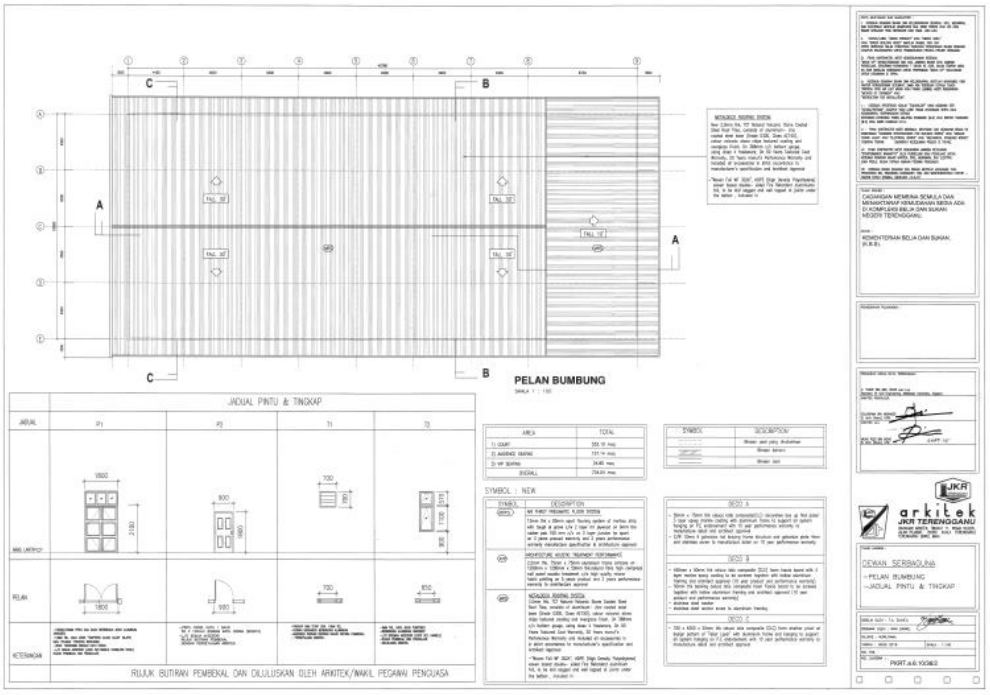
D) The condition of ceiling

F) The view for existing work after mansory work

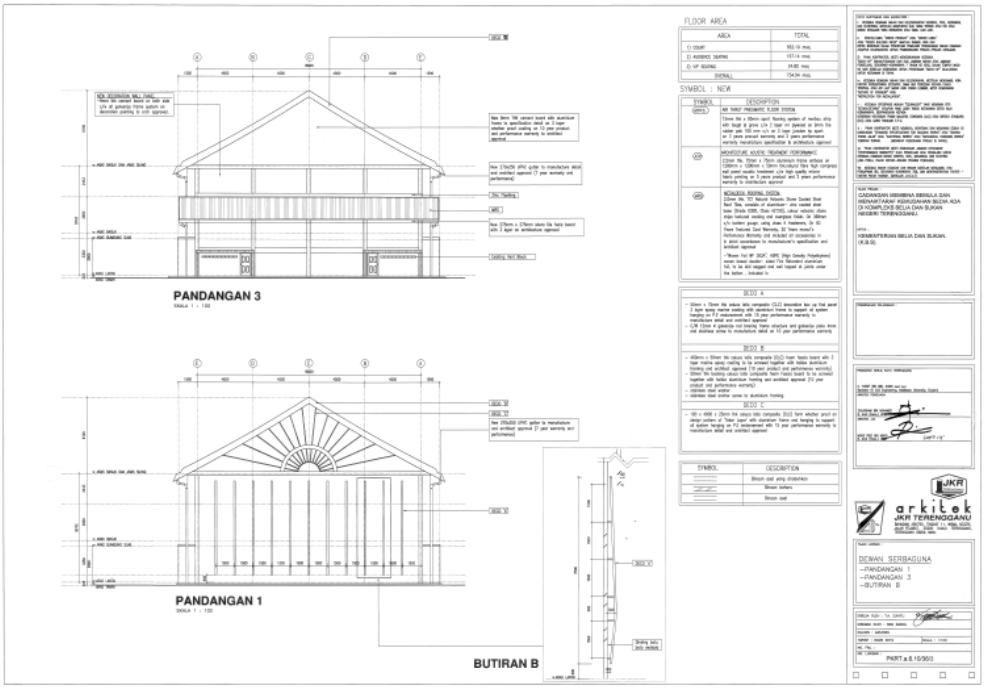
G) Floor plan for Dewan serbaguna

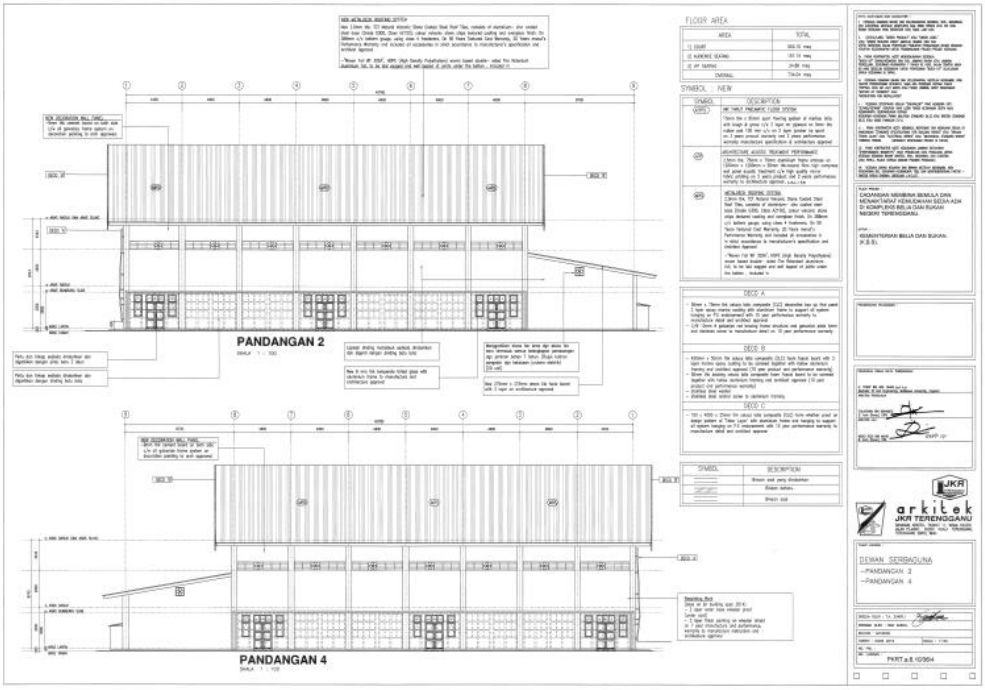


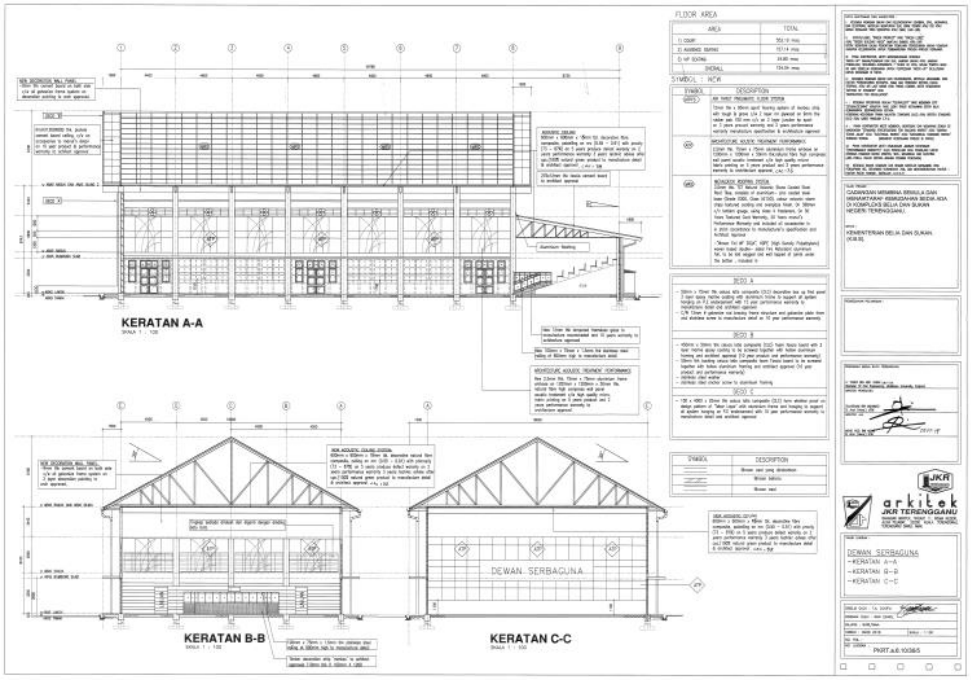
H) Roof plan for Dewan serbaguna



I) Elevation plan




PANDANGAN 2
PANDANGAN 4
DEWAN SERBAGUNA
-PANDANGAN 3
-PANDANGAN 4


KERATAN A-A
KERATAN B-B
KERATAN C-C
DEWAN SERBAGUNA
-KERATAN A-A
-KERATAN B-B
-KERATAN C-C