



**DEPARTMENT OF BUILDING
UNIVERSITI TEKNOLOGI MARA
(PERAK)**

Renovation Work For A House

Prepared by:

MOHD SHAFIQ HELMI BIN MOHAMAD SHARIF

2017206498

DEPARTMENT OF BUILDING
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING
UNIVERSITI TEKNOLOGI MARA
(PERAK)

DECEMBER 2019

It is recommended that the report of this practical training provided

by

Mohd Shafiq Helmi Bin Mohamad Sharif

2017206498

entitled

Renovation Work For A House

be accepted in partial fulfillment of the requirement for obtaining the Diploma In Building.

Report Supervisor	:	Ts. En/ Mohd Mohd Fareh Bin Majid
Practical Training Coordinator	:	<u>En. Muhammad Naim Bin Mahyuddin.</u>
Programme Coordinator	:	<u>Dr. Dzulkarnaen Bin Ismail.</u>

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STUDENT'S DECLARATION

I hereby declare that this report is my own work, except for extract and summaries for which the original references are stated herein, prepared during a practical training session that I underwent at Harvest Mar Resources Sdn Bhd for a duration of 20 weeks starting from 5 August 2019 and ended on 20 December 2019. It is submitted as one of the prerequisite requirements of BGN310 and accepted as a partial fulfillment of the requirements for obtaining the Diploma in Building.

Name : Mohd Shafiq Helmi Bin Mohamad Sharif

UiTM ID No : 2017206498

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Assalamaualaikum warahmatullahiwabarakatuh

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ABSTRACT

Renovation is a common thing for the house owner that want to try a new design for their house or when there are any problem that required them to do the renovation. This report are actually based on the thing that is ongoing at the site to know more about the renovation of a house. The objective of this report is to discuss about the work needed for a house renovation from the demolishing of the old structure to the construction of the new part of the house. It is also to see the difference between building a new house and renovation of a house. Most of the information are gathered at the site during the whole internship period. This report is important to know why the renovation take quite a time compared to the construction of a new house.

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CHAPTER 1.0

INTRODUCTION

1.1 Background and Scope of Study

Renovation or also known as remodeling is the process of improving broken, damaged or outdated structure. Renovation can be done either at commercial or private building and also based on the size of the renovation, or so called as major or minor renovation. One of the reason why people choose to renovate their house is because they want an updated design of house but they do not have any land to build another house.

1.2 Objectives

To investigate what kind of work need for renovation.

To determine the differences between renovation of a house and a construction of a new house.

1.3 Method of study

Basically the methods use to search an information is by observation at the site, which is what that had been doing every single day, next is by interview which most of it is unstructured-interviews to the supervisor and workers to increased the understanding on certain thing or works. Some other method also by document review such as roof plan ada floor plan, this document is provided by the company to mkae things easier for the supervis

CHAPTER 2.0

COMPANY BACKGROUND

2.1 Introduction of Company



Figure 2.1 Company Logo

Harverst Mar Resources is a patnrship company located at 1907, Second Floor, Jalan Stadium, 05100 Alor Setar, Kedah. This company is led by two guy which is a siblings. This company had been set up at 27th of July 2011 under Akta Pendaftaran Perniagaan 1956 and registered with the Minister of Finance. Harvest Mar Resources are more known as HMR GROUP.

HMR also registered with the Constuction Industry Development Board (CIDB) as gred G2 construction contractor and also have the certificates of government procurement from CIDB.

With a wealth of knowledge and experience in small scale construction and subcontractor work, HMRs are increasingly active in their field of work and showcase their increased capabilities in terms of performance and quality of work. HMR is capable of carrying out work that will be entrusted to both the government and the private sector.

Now HMR is more focusing on building bungalow for private customer to build their dream home. The price vary based on the package choose by the customer from 3 star, 4 star, and also 5 star. The material used in the construction also will be different based on the package

2.2 Company Profile

VISION

To become one of the construction company that is competitive and advanced in the construction industry.

MISION

To become the construction company that can excellently perform in their work and can be trust by many people.

COMPANY OBJECTIVE

- 1) Making HMR a company that produces high quality and highly committed work.
- 2) To introduce the services provided by the company to the general public both in the private and government sectors.
- 3) To become a construction company based on the latest applications to meet customer needs and satisfaction.
- 4) To practice the experience and service of the available expertise through continuous training and consistent work quality.

2.3 Organization Chart

This chart are the same one that been used in the company since before. As can be seen, this company have two managing director which is a sibling. One Human Resources admin, three site supervisor that has been assigned to different site according to the area. For now this company only have one draught person or a planner, she is the one that make all the new plan for the company. Lastly is the one that control all the marketing strategy in the company which is two person.

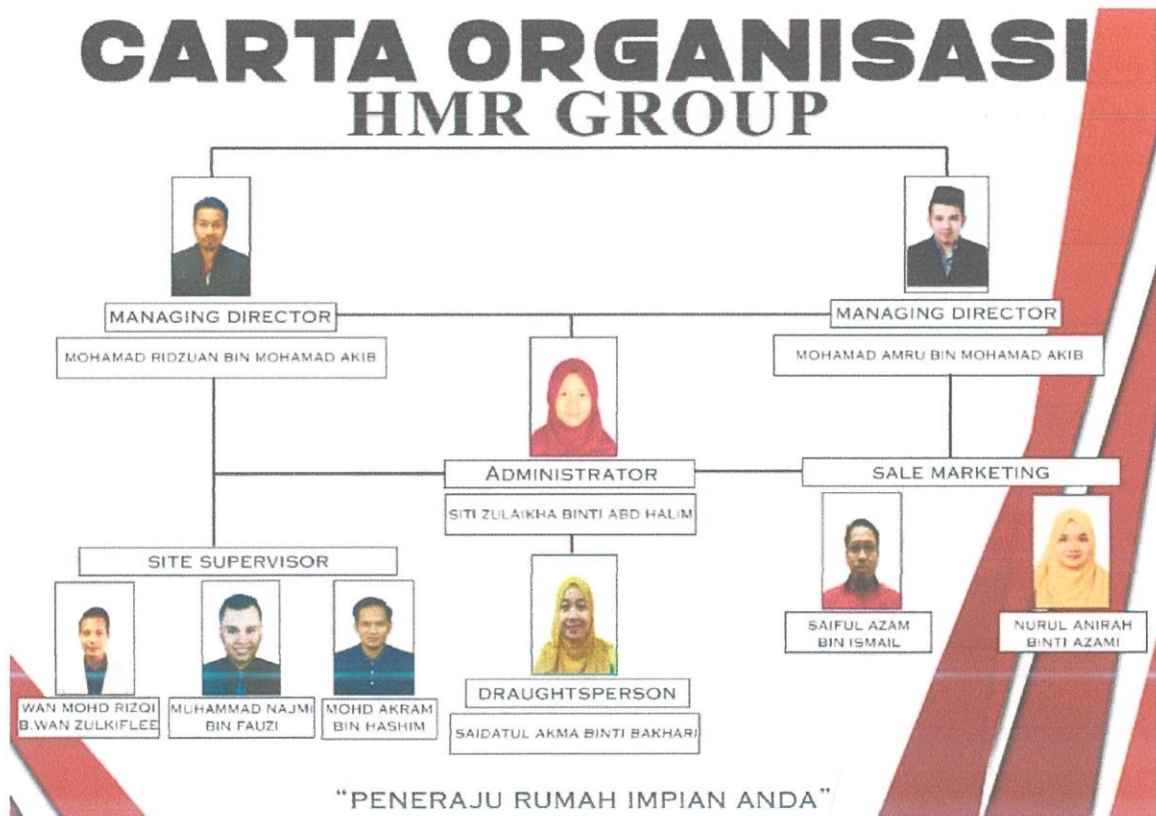


Figure 2.3 : Organization Chart

2.4 List of Project

BIL	PROJECT	CLIENT	MAIN CONTRACTOR	CONTRACT PRICE	DATE OF SITE OWNERSHIP
1	Cadangan membina satu unit rumah banlo satu tingkat jenis kekal di atas tanah Kg Teluk Berangan Mukim Gelong, Jitra, Kedah	Puan Nor Suriani Binti Abd Hamid	Harvest Mar Resources	RM 229,500.00	2 Januari 2019
2	Cadangan membina satu unit rumah bangle 1 tingkat jenis kekal di atas tanah Lot 606 Kg Padang Hassan, Mukim Lengkuas, Kedah	Puan Khalijah Binti Hanafi	Harvest Mar Resources	RM 150,000.00	4 Februari 2019
3	Cadangan membina satu unit rumah banglo 1 tingkat jenis kekal di atas tanah Lot 60218, Mukim Bujang, Daerah Kuala Muda, Sg Petani, Kedah	Puan Rodziah Binti Othman	Harvest Mar Resources	RM 384,300.00	12 Januari 2019
4	Cadangan membina dan menyiapkan 1 unit bangle 1 tingkat sesebuah milik kekal di atas tanah sendiri No. 20 Kg Bendang Cherok, Changloon, Kedah	Puan Ena Binti Bahadon	Harvest Mar Resources	RM 81, 000.00	25 Jun 2019
5	Cadangan mengubahsuai dan menyiapkan sebuah rumah 1 tingkat di Bee Bee Park, Simpang Kuala, Kedah	Puan Norhayati Binti Muhamad Zain	Harvest Mar Resources	RM 186,000.00	1 September 2019

Table 2.4 : List of Project

CHAPTER 3.0

CASE STUDY (RENOVATION WORK FOR A HOUSE)

3.1 Introduction to Case Study

This report are based on the observation, learning and the information collection at site. The construction of the house that is ongoing for this company have about 13 site at the time. But I had been assigned to three different site which is construction of a house at Bukit Pinang, Kampung Gelong, Jitra and the renovation of a house at Bee Bee Park, Simpang Kuala. For Bukit Pinang and Kg Gelong, Jitra the progress of the house is already at the finishing state which is why the renovation at Simpang Kuala was choosen as the report title. This renovation cost about RM 186,000.00. This can be considered as major renovation because it including the renovation of a whole house as the house owner need to move out to give space for the construction. Basically this site is located in the urban area since the house itself is in the residential area and also surrounded by a lot of shop lot building and also flat.



Figure 3.1 : Site Location (in the circle)

3.2 To investigate what kind of work need for renovation

Before any renovation or any construction of a house begin, meeting between client the contractor and architect need to be done. The purpose of this meeting is to discuss about the new design, according to what the client want. The price of the project will also be discussed at this stage. Actually this stage take quite a time because the need to change the old plan to the new one and for this project, it takes about two months just for the discussing stage. After all the changing and the price had been agreed by both parties, then the agreement can be sign and the work will start.



Figure 3.2.1 : Meeting with a customer

The first thing that need to be done before the wall tearing process is to mark all the wall or space that will not be use or will be build with an new one. With that there will no mistake happen where workers break off the wall that still need to be use. One of the way to mark the wall is using spray paint and make 'X' using it. With that, the workers will now that the wall will not be use anymore and they can tear it down safely. This stage of work does not need a lot of time since all that need to done is to check on the plan, a week is more than enough for this work.



Figure 1.2.2 : Some example of an 'X'

After all the place or wall had been mark using the spray paint, the workers can start tearing and breaking of the wall. This process can take quite a time according to the size and how much wall need to be break off. For this site, the work take about three to four weeks which is quite long, even until now there are some space that still need to be tear down. This process take quite a time because the work is done manually and not by any machine or technology. For this project, time needed to finish this work is more than 3 weeks and sometimes can reach a month.



Figure 2.2.3 : Some broken wall

To break off the wall, there are some important things that need to be considered, such as does the wall have any column in it, does the wall is just a wall or there are any upper beam included in there. If there are column in the wall, it cannot be pull out just like that. The load that will be carried in the future need to be taken care off, if the column is no there, will the wall itself be able to carry the load from the truss and the roof. The arrangement to break off the house also need to start from below then little by little to the roof. To clearly tear down the roof which is from the roof tiles type, it takes about a week and a half or two weeks to finish it.



Figure 3.2.4 : Process of tear off the roof

All the wall and roof that had been break off than will be put at the field that is located just beside the house. Since it can be said that most of the wall in the house had been tear off, so the stone and all the broken wall and roof are all around the field. Then numbers of bin to put all the broken stone, wall and roof. The excavator also need in this work because of that many of broken wall making all the bin that been rent is not enough and lorry need to be use too to take out all the thing from the site. This process can bed one in a day if the lorry and the bin are enough to carry all the rubbish



Figure 3.2.5 : Rent bin



Figure 3.2.6 : Using excavator and lorry to remove the rubbish

The next work after the site clearance is to prepare for construction of the structure. The first structure that will be constructed is the column, since the ground is already made from the concrete, workers need to hack the concrete floor to make space for the footing. At this stage, the steel bending process already starts which is for the footing and also the column. But since this is a renovation, there is not many footing or column that need to be made. Just a few new points are enough to support the old structure.



Figure 3.2.7 : Rebar for footing



Figure 3.2.8 : Footing space

To make this footing, the work like concreting work is still going to happen, it is just that the ground around it is a little different which is not a soil but a concrete. Next, after the pad footing is done, ground beam need to be made. But its is same to the column and footing where the beam is not needed at every place but just at few point which is added during this renovation. To make the beam, a long steel will be needed to strengthen the beam from one point to another. Alongside the steel must be the formwork to give the right shape to the beam. This work also can be done in a day or two because there are not many new footing.



Figure 3.2.9 : Making of a new beam



Figure 3.2.10 : Making of a new ground beam

Next after the new beam and footing are done, the works are moving on to the installation of the formwork which is around the house. Actually, the client for this house want to elevate the floor level in the house adding about nine more inches. But since the old floor is already strength, the floor will not be break off and just another concrete will be pour on top of it. This is why the formwork is needed around the house, to follow the old floor space. This work required about one to two weeks starting n of the formwork and the from the making of the formwork, bar bending and installation and the reinforcement.



Figure 3.2.11 : Formwork for new floor



Figure 3.2.12 : Formwork for new floor

For the base of the floor, some of the broken bricks and wall are spread on the floor, to give more strength on the new floor later. But just with that is not enough strength for the floor, to make it stronger brc are lay on top of the broken bricks. Every column will be tied to the brc, hole will be drill in the wall so that some y10 steel can be put inside the hole then will be tied together with the brc. The reason why the brc were tied to every column and wall of the house is to avoid any settlement in the future.



Figure 3.2.13 : BRC laying

After all the brc had been laid on the ground, supervisor will do some inspection to make sure that all the steel were tied and in good condition. When they say that it pass the evaluation then concreting work can start. For ground floor, the concrete use is concrete grade 25 and fro this house it takes about 48 m³ of concrete to fill the whole house. On the day of concreting work, one crane needed to move the concrete using bucket since this house have fence around the house. After concrete were pour, a vibrator need to be use to compact the concrete and make sure there is no air bubble in the concrete. Concreting work need to be done in just a day to make sure the quality of the floor.



Figure 3.2.14 : Crane and concrete mixer



Figure 3.2.15 : Concrete pouring from bucket

When the concrete is hard, usually after few days, the formwork can be uninstalled. Next is brick layering work, this work also takes a few weeks to finish. For the procedure of brick layering work, after 4 or 5 layers of brick, make sure to put a fish-tail joint together with the mortar. While the work is ongoing, make sure to check on the plan to see if the progress is in the right path, this is because sometimes the workers did not know about the right length from one wall to another wall. The brick layering work for this project takes about a month since there is a rainy season so the work cannot be done.



Figure 3.2.16 : Brick layering work

While the brick layering work is ongoing, there must be time where there is some space need to be left for the window. For the size, height and location of the window, it is better to have a double confirmation with the client. This is to make sure there is no mistake made that will delay the other work. As for the window and door, there must be a lintel on top of every window and door. The purpose of the lintel is to carry the load and did not let the window or door carry it because it affect the structure.



Figure 3.2.17 : Timber frame to make space for the actual window



Figure 3.2.18 : Lintel for window

The next step after finishing the brick laying work is to make upper beam, since the height of the floor had been added the height of the ceiling also need to be add. If not the space will become to small to live in. The work is quite same with the ground beam, steel bending, tying, cutting the steel formwork installation and also concrete pouring. It is just that for the upper beam, all the beam need a new one because of the addition of the floor height. Also because the beam need to carry the load from the roof so the more the better. For this work it takes two weeks to finish all the upper beam.



Figure 3.2.19 : Concrete pouring to the upper beam

After the upper beam is hard which also takes time, the roof truss making can start. For this roof plan, this company hire one specialist roof architect to design the roof for this house. This is because since this house is actually semi-D so the design also should not harm the neighbour. what can be say as harm the neighbour is if the roof design is not right, the rainwater might go to the side and effect their house. While making the truss, it is really important to always check the plan to make sure the length is correct.



Figure 3.2.20 : Checking on the roof truss



Figure 3.2.21 : Workers lifting the truss

Lastly is the installation of the truss on the upper beam, basically this work is fully based on the plan provided by the architect. Either the length between every truss and also the right location of every single truss because each one of it is different from each other. After the truss is at the right place, batten will be installed according to the right length. Before the installation of the roof tile, fascia board need to be installed first. The installation of the fascia board takes only two days to finish while for the roof truss it takes about a week to install all the roof truss at its place.



Figure 3.2.22 : Secure the position of the truss



Figure 3.2.23 : The look after installing fascia board

3.3 To determine the differences between renovation of a house and a construction of a new house

2.1.1 Setting out

For a new house, setting out is a must to determine the location of the house while for the renovation there is no need for that because the house is already there.



Figure 3.3.1.1 : Example of setting out for new house

2.1.2 Pad footing / column / ground beam

For the construction of a new house, all of the footing, column, and ground beam are needed to carry the load and transfer it to the ground since there is no other structure that can do that. While for the renovation of a house, all of the above are only needed when there is a new point of footing and even sometimes there is no need for any addition of that.



Figure 3.3.2.1 : Example of pad footing for new build house.



Figure 3.3.2.2 : Example of ground beam for new house.

2.1.3 Roof design

The roof design for a new house can be vary according to the creativity of the architect and also with the desire of the house owner. They can choose from hundreds design of roof to be implified to their house design. But it is not the same for renovation because the design has the limit according to the old structure of a house. Architect need to consider the design that will not affect the structure of the house

CHAPTER 4.0

CONCLUSION

4.1 Conclusion

In conclusion, the objective for this report is achieved, but not every step can be learned for this time because the estimated time for this renovation is 6 months. Until now there are about 2 months left before the finishing state. There is still many things to learn if there are more time. For now, the progress is until the installation of roof truss on the upper beam. The method used for renovation may be a little bit different from the construction of a house, but the basic is still the same. The progress for the construction and renovation of a house are a little bit different because for example, for construction of a house, by its first month the brick layering work can already start. But for the renovation by its first month the work to tear down the wall may still not finish. This is why it can be said that renovation takes more time to finish and requires more works compared to the construction of a house.

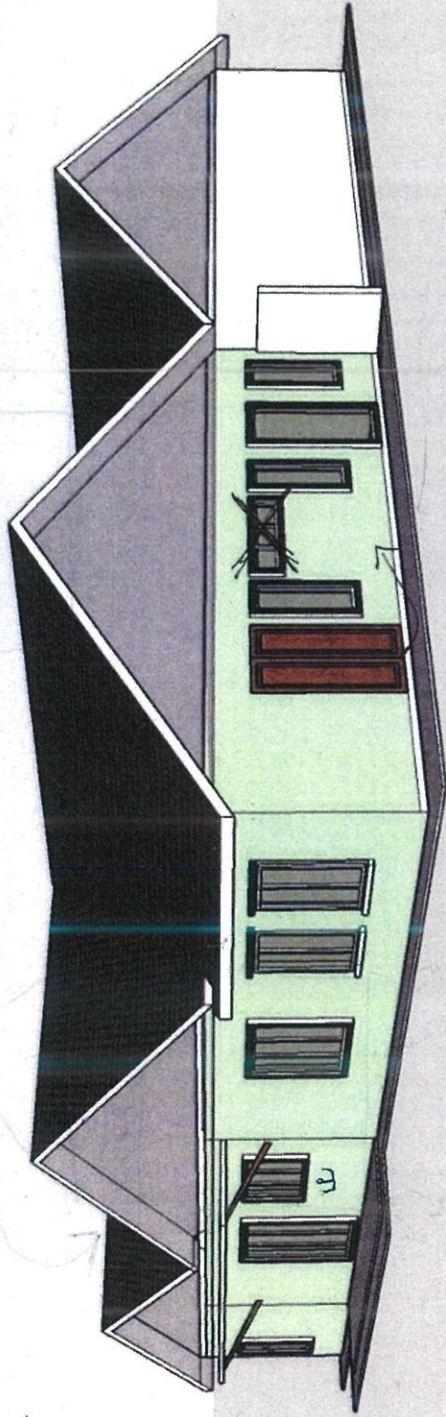
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Web Site:

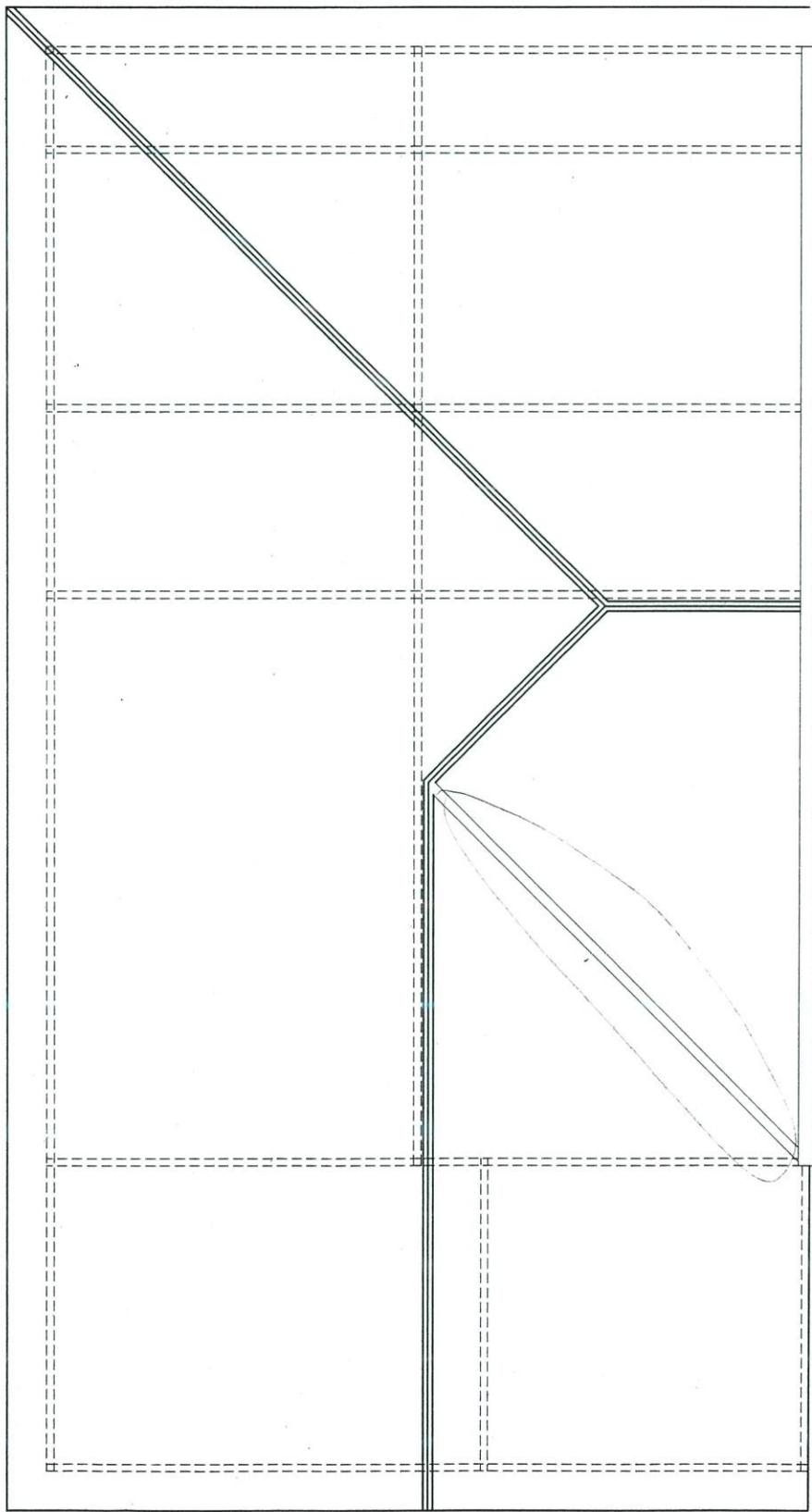
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APPENDIXES



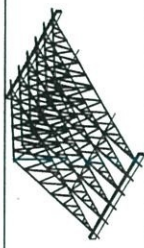
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CONCRETE TILES

FASCIA BOARD = 173 ft. run.
 STAD C75 = 217 pcs.
 BATTEN = 234 pcs.
 V/GUTTER = 4 pcs.
 RIDGES = 105 ft.

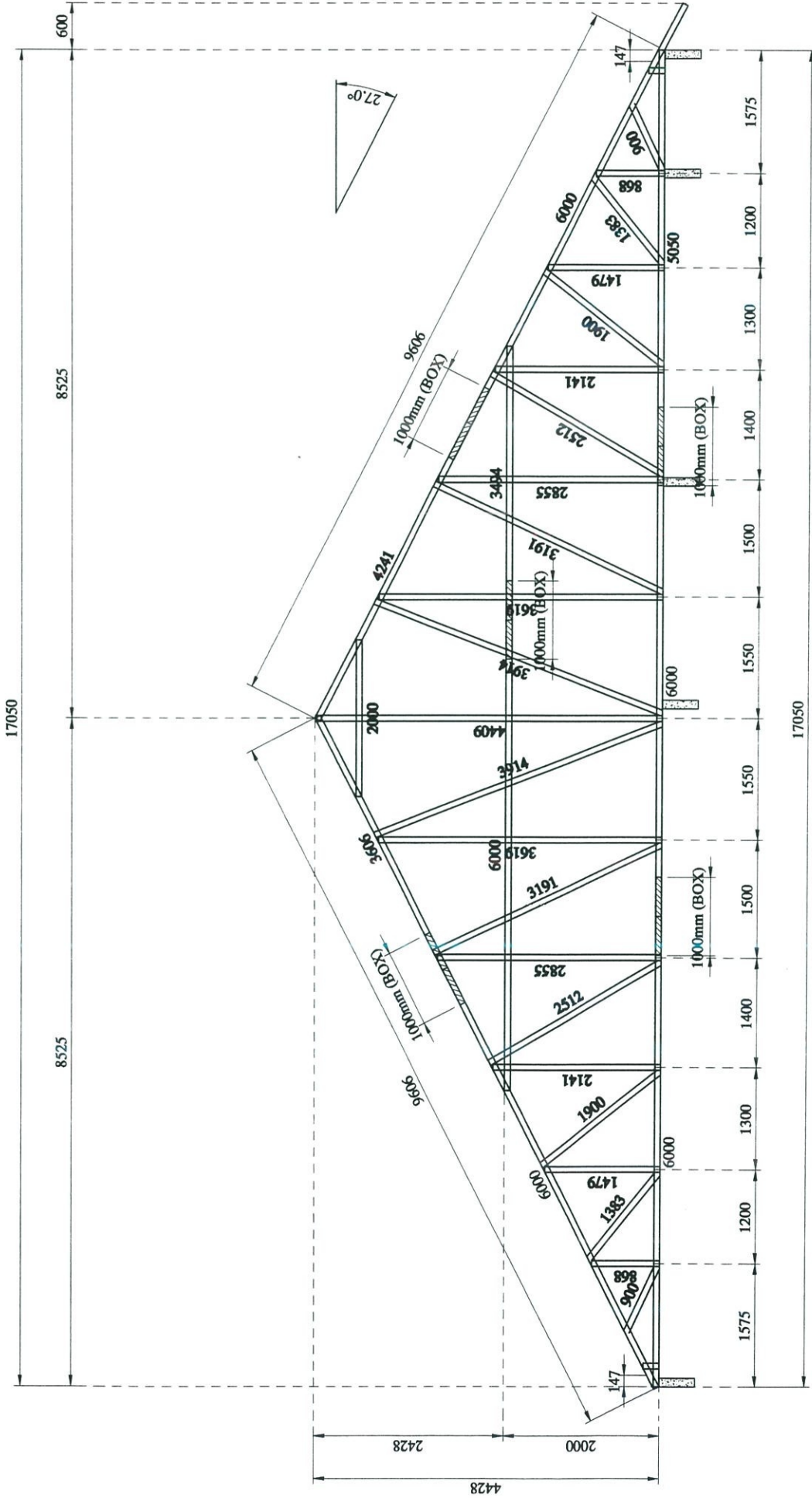
ROOF PLAN
 (PITCH 27°)
 289.5 x 12.0762
 = 3496 sq.ft



PROJECT: CUDANGAN PINDAAN DAN TAMBAHAN KEPADA SEBUAH RUMAH TINGKAT DI BEE BEE PARK, SURABANG KUALA LUMPUR SETIAU, KEDAH DARUL AMAN.
 CLIENT:
 DWG. NO.:
 REV. NO.:

TITLE:
PINDAAN DAN TAMBAHAN RUMAH
TOTAL AREA CALCULATION

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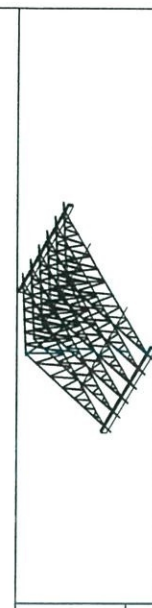


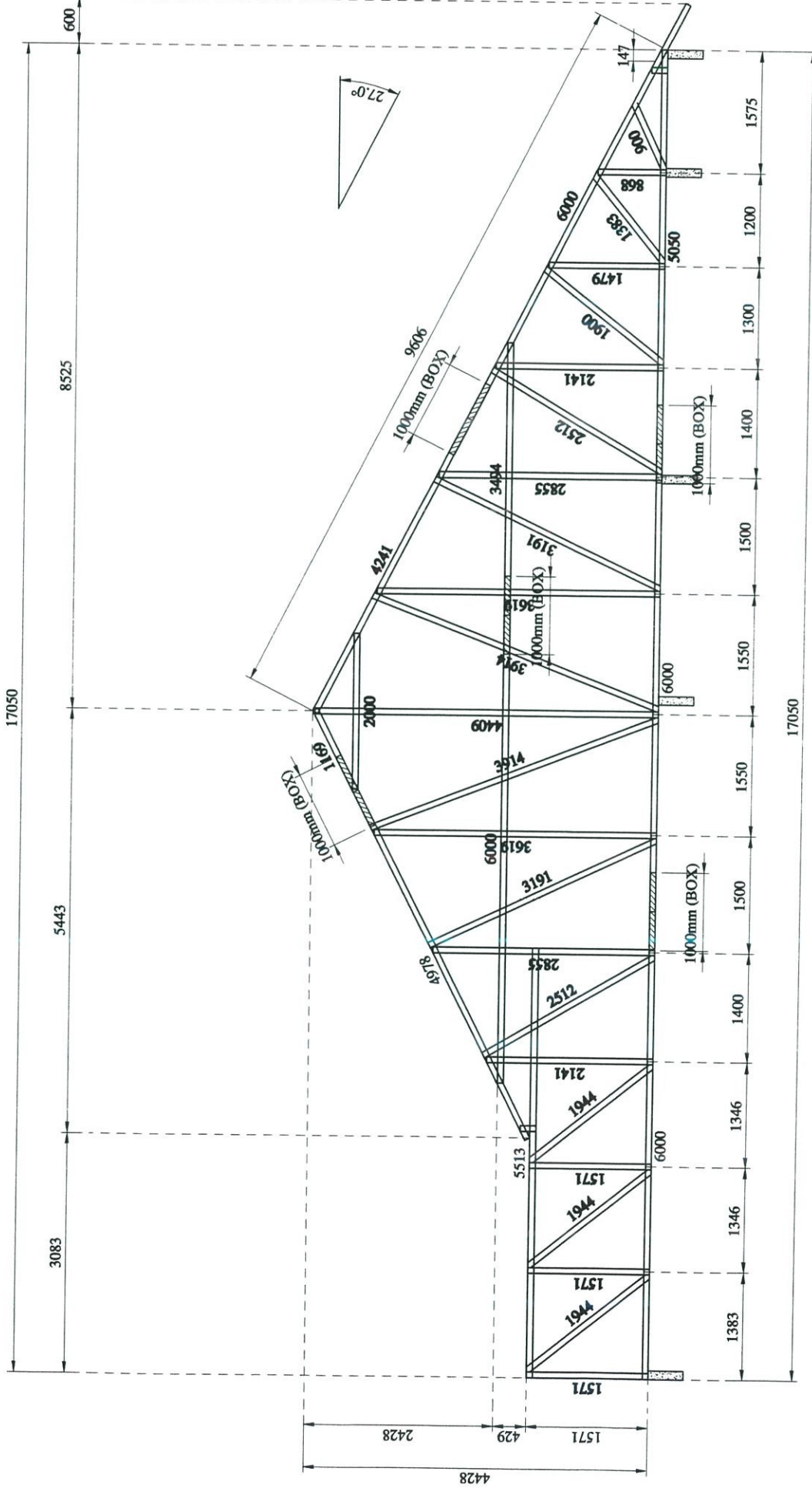
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	KHAIRUL	

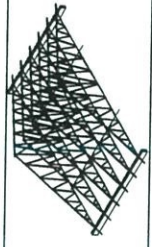
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PROJEK:
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 BIMPING KUALA ALOR BETAR,
 KEDAH DARUL AMAN.
 CLIENT:
 DWG. NO.:





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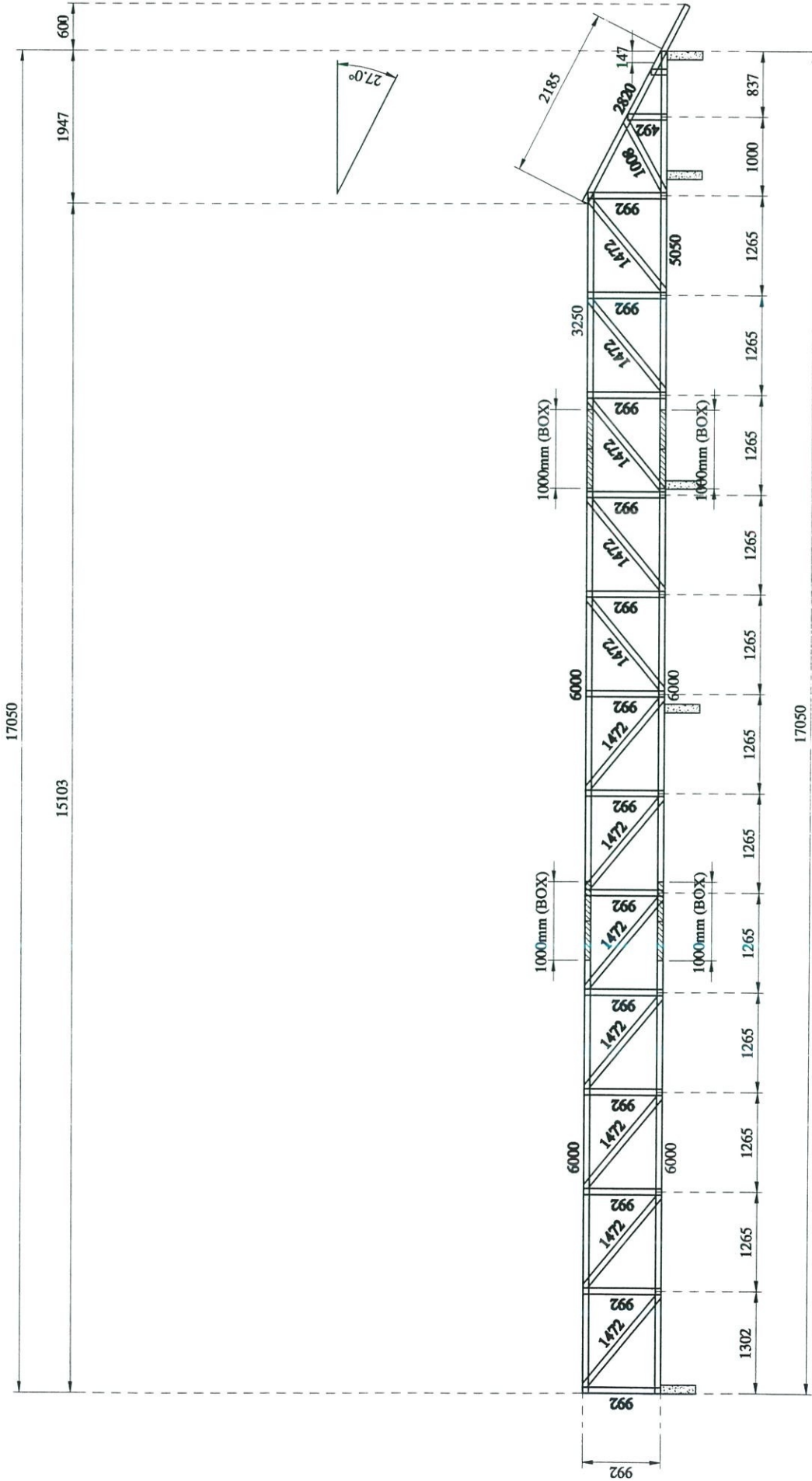


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 CLIENT:

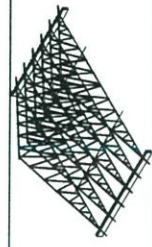
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PROPOSED ROOF TRUSSES DETAIL

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SHEET NO.:	CHECKED BY:	KHARRUL		
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DWG. NO.:
 REV. NO.:



TRUSS TYPE - T11 x 1 NO.



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 CLIENT: DWG. NO: REV. NO:

TITLE: **PINDAAN DAN TAMBAHAN RUMAH PROPOSED ROOF TRUSSES DETAIL**

SCALE:	DESIGN BY:	KHAIROL
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SHEET NO.:	CHECKED BY:	KHAIROL
1	DATE:	NOV. 2019

