



DEPARTMENT OF BUILDING
UNIVERSITI TEKNOLOGI MARA
(PERAK)

**INSTALLATION OF FINISHES IN A UNIT OF HIGH RISE
CONDOMINIUMS OF THE HENGE, KEPONG KUALA LUMPUR**

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UNIVERSITI TEKNOLOGI MARA

(PERAK)

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It is recommended that the report of this practical training provided

by

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Entitled

**INSTALLATION OF FINISHES IN A UNIT OF HIGH RISE CONDOMINIUMS OF
THE HENGE, KEPONG KUALA LUMPUR**

Accepted in partial fulfilment of requirement has for obtaining Diploma in Building.

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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 stated herein, prepared during a practical training session that I underwent at Kenwingston Sdn Bhd. for duration of 14 weeks starting from 3rd September 2018 and ended on 7th December 2018. It is submitted as one of the prerequisite requirements of DBG307 and accepted as a partial fulfilment of the requirements for obtaining the Diploma in Building.

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Date : 11th December 2018

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Finally, special thanks to my beloved parents for their sacrifices over the years and also my classmate who help me to assemble the parts and gave suggestion about this report. Finally, I appreciate all their guidance

Thank you so much.

ABSTRACT

The type of finishes used in a unit of the condominium is one of the most important step of completing the units. The main topic discussed in this report is related to the finishes used on the project Cadangan Pembangunan 2986 Unit Pangsapuri Yang Mengandungi Fasa 1: 2 Blok Pangsapuri Mampu Milik (1514 Unit) Yang Terdiri Daripada Blok A – 41 Tingkat dan Blok B – 41 Tingkat dan Fasa 2 : 4 Blok Pangsapuri (1472 Unit) Termasuk 8 Tingkat Podium Tempat Letak Kereta Beserta Kemudahan Penduduk, Kolam Renang, Pencawang Elektrik, Kebuk Sampah dan Pondok Pengawal. Fasa 3 : 31 Unit Kedai di Aras Bawah dan Tingkat 1 di atas tanah 10,089 ekar di Jalan Metro Perdana Barat, Taman Metropolitan, Kepong, Wilayah Persekutuan Kuala Lumpur. This report described the type, materials, equipment and the method statements of completing the finishes. It also touched on the topic of why the architecture decided to choose the suitable type of finishes to be used. In order to complete report, it required extra observation and interviews with related personnel for better understanding the works. In conclusion, this report contained all the elements related to the finishes.

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Appendix (C) The building plan of level 7 (shows the podium and facilities)

Appendix (D) Floor plan of level 8 (shows the layout of the units)

Appendix (E) Floor plan of level 24 (shows the location of the pump room for each blocks)

Appendix (F) Floor plan of a block

Appendix (G) Detail drawing of level 8

Appendix (H) Detail drawing of level 24

CHAPTER 1.0

INTRODUCTION

1.1 Background and Scope of Study

Finishes is the stage that is carried out during the final part of the construction, it will form the final surface of the wall, floors or the ceiling. It serves two main purpose which is to protect the surface from the weather, wear abrasion and so on. Next, it can also serve as decorative purposes.

Surface finishes have a critical influence on the aesthetic qualities of a space. In the selection and use of a finish material, we should carefully consider its colour, texture, pattern and the way it meets and joins with other materials. If a finish material has modular characteristics, then its unit's dimensions can be used to regulate the dimensions of a wall, floor or ceiling surfaces (Francis D.K Ching, 2014)

There is various type of finishes for the floors such as bricks, stone, rendering, tiling, asphalt, rubber and many more but for this particular building, it compromises of mainly the usage of porcelain tiles. Porcelain tiles refer to the type of tiles that can be used to cover floors and walls, with water absorbtion rate of less than 0.5 percent. It is also made from no ordinary clay as the density is higher compared to ceramic tiles. It can come in glazed or unglazed surface. Porcelain tiles is also tougher because during the making process, it has been burned to a very high temperature.

Next is for the wall finishes, it is the finish given to the surface of the wall in order to enhance the interior and exterior of the buildings. On top of that, wall finishes can also be use to provide a decorative covering to hide various building components such as structural members, ductworks, insulation, wires and also the plumbing aspect of it.

The aim of the study is to gain more insight about the finishes aspect of the buildings and also to witness how the process of it take place during the construction.

1.2 Objectives

- To gain better understanding about the type of finishes used in the units
- To identify the installation method of the finishes
- To determine the reason water leakage occur and how to rectify it

1.2 Scope of study

PDI or pre-delivery inspection is a stage that occur during the later time in a construction in which the developer is required to spend some amount of time to check and inspect the completed or nearly complete house unit. Before the pre-delivery inspection itself begin, the client of the project which is in my case, Aset Kayamas Sdn Bhd, will have their representatives to come to the site and inspect the units to looks for any defects or any imperfections in the unit itself. If the representatives find any problems in the units, they will fill it in a form. By using this form, the developer can then fix or make some changes if required. This is done so that the units are in perfect condition during the handover stage. In order to ensure this process flow smoothly, it is up to the supervisors to ensure that the units and also the finishes are in good condition without any defects or damages to it.

1.4 Research methods

The study is carried out with several methods to achieve better understanding of the objectives. Methods of the study are as follow:

1.4.1 Data collection

i. Observation

This method is used during the duration of the practical training at. The information and knowledge regarding the objectives are obtained by observing the works carried out at the site. This is done under the supervision of my manager to ensure the data collected are correct. Uses of devices such as smartphone and camera are also crucial for data collecting.

ii. Interviews

This is an excellent method to get better and in-depth details about the works and project itself. Multiple unstructured interview is set out with the project manager, engineer, architect, coordinator of M&E, clerk of work and site supervisors regarding their field of expertise respectively.

iii. Document reviews

The construction drawings, company files, standard operating procedures, architectural drawings and structural drawing plan was referred. These documents are stored at the site office and can be access when required.

1.4.2 Reference

i. Book

Books were used to obtained definition about few things that were unable to acquire at the site. Furthermore, this method is very good because the information in it are credible and is verified its correctness.

CHAPTER 2.0

COMPANY BACKGROUND

2.1 Introduction of Company

Kenwingston was originally a construction company back when it was founded in 2010, but in the early 2018, the company officially announced itself venturing into property development branch. The company is headquartered at Wangsa Maju, Kuala Lumpur, Malaysia. On top of that, the company also supplies many kinds of machineries for construction throughout Malaysia. Now that it is doing very well in the newly branched world of property developer, the company is now aiming to be an international company in the near future. The projects that was built ranging from high rise condominium to high end shop lots.

As of now, the company have successfully completed 10 mega projects all around Kuala Lumpur and Selangor and is now in the progress of completing another 5 projects before converting the company from a construction company to a property developer in order to create more quality products and to achieve higher level of customer satisfaction.

Kenwingston Sdn Bhd is very well known in construction world in Malaysia for their achievements in completing their projects way ahead of the scheduled deadline. For example, The Henge, Kepong where this study was conducted was completed 4 months prior to initially scheduled handover date. Because of this, the company have successfully scored many hundred million ringgit worth of project. The clients are really satisfied with the performance of the company and most of them will chose Kenwingston Sdn Bhd for their future projects.

2.2 Company Profile



Figure 2.1: Company logo

Company Name	Kenwingston Sdn Bhd
Address	No. 82, Jalan Wangsa Delima 6, Pusat Bandar Wangsa Maju (KLSC), Seksyen 5, Wangsa Maju, 53300 Kuala Lumpur
Telephone No.	
Fax No.	
Year established	2010
Email	kenwingston.my@gmail.com
CIDB Register Number	
Company No.	10277577-P
CIDB Grade	G7

2.3 Organization Chart

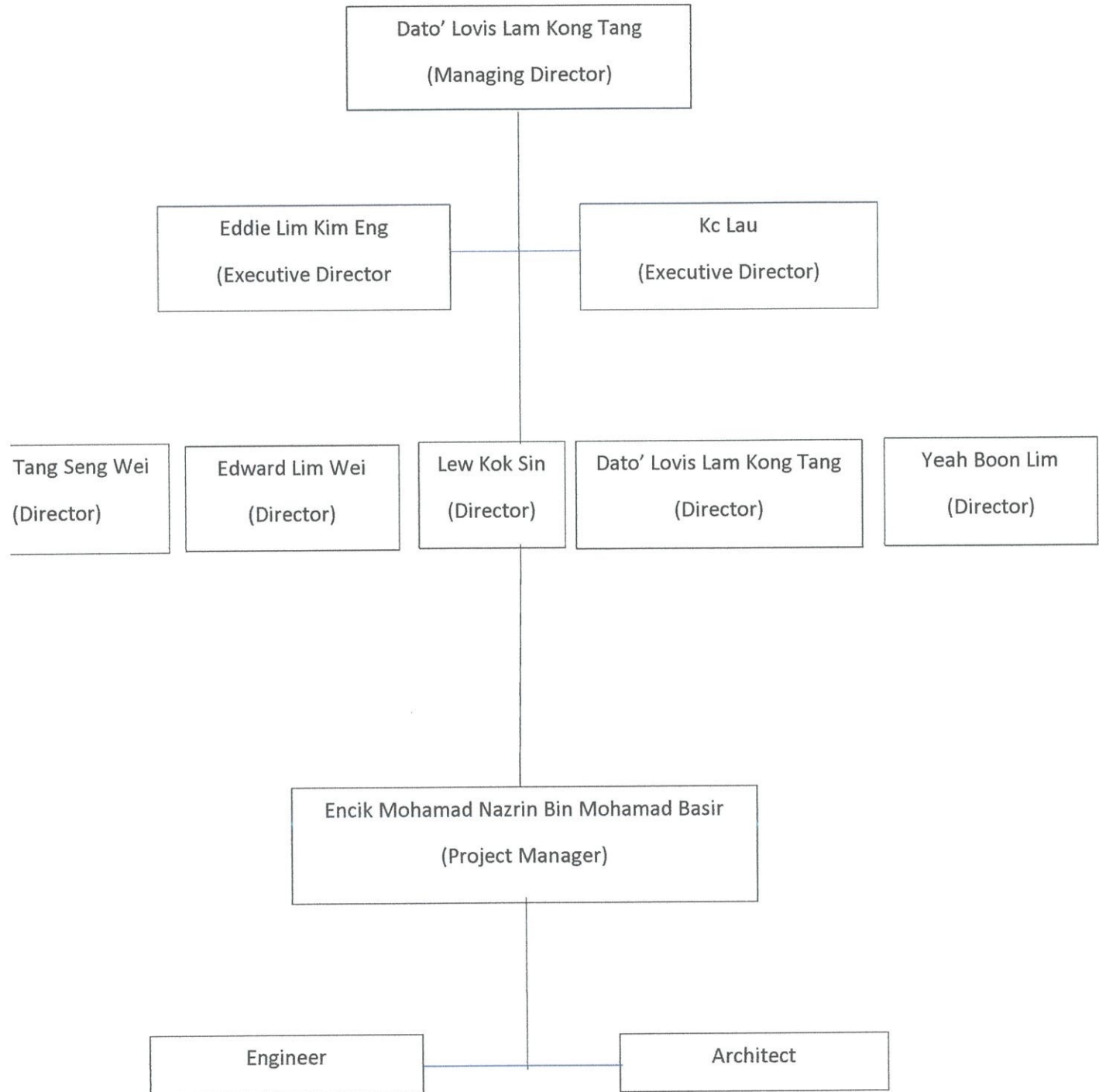
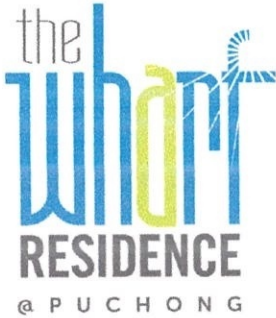




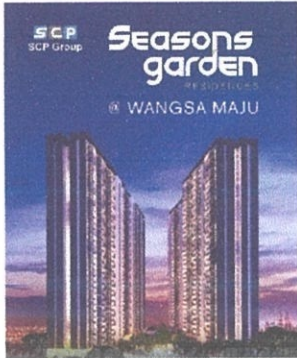
Figure 2.2: Organization chart of Kenwingston Sdn.Bhd.

2.4 List of projects

2.4.1 Completed Projects

No	Project	Client	Location	Project value
1	The Wharf Residence	Bolton Berhad	Puchong, Selangor	RM 160,000,000
				
2	De Centrum	De Centrum Development Sdn Bhd	Sepang, Selangor	RM 150,000,000
				
3	Almyra Residence	IOI Properties	Bangi Selangor	RM 200,000,000
				

4	Seasons Garden Residences	SCP Group	Wangsa Maju Selangor	RM 180,000,000
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6	KL Traders Square	SCP Group	Kuala Lumpur	RM 200,000,000
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Figure 2.3: List of completed projects

2.4.2 On-going Projects

No	Project	Client	Location	Project value
1	Kenwingston Square Garden	Kenwingston Sdn Bhd	Cyberjaya, Selangor	RM 500,000,000
				
2	Kenwingston Avenue	Kenwingston Sdn Bhd	Sungai Besi, Kuala Lumpur	RM 300,000,000
				
3	The Societe	SCP Group	Desa Sri Hartamas, Kuala Lumpur	RM 150,000,000
				


4	THE HENGE	KENWINGSTON SDN BHD	KEPONG, KUALA LUMPUR	RM 500,000,000
				

Figure 2.4: List of on-going projects

CHAPTER 3.0

CASE STUDY

3.1 Introduction of Project

The project that I was involved with during my 14 weeks of practical training was Cadangan Pembangunan 2986 Unit Pangsapuri Yang Mengandungi Fasa 1: 2 Blok Pangsapuri Mampu Milik (1514 Unit) Yang Terdiri Daripada Blok A – 41 Tingkat dan Blok B – 41 Tingkat dan Fasa 2 : 4 Blok Pangsapuri (1472 Unit) Termasuk 8 Tingkat Podium Tempat Letak Kereta Beserta Kemudahan Penduduk, Kolam Renang, Pencawang Elektrik, Kebuk Sampah dan Pondok Pengawal. Fasa 3 : 31 Unit Kedai di Aras Bawah dan Tingkat 1 di atas tanah 10,089 ekar di Jalan Metro Perdana Barat, Taman Metropolitan, Kepong, Wilayah Persekutuan Kuala Lumpur.

The client of the project is Aset Kayamas Sdn Bhd which is a property developer company that have project ranging from high end luxury residential development to housing project partnered with the government such as Perumahan Penjawat Awam 1 Malaysia (PPAM) and Rumah Mampu Milik Persekutuan (RUMAWIP).



Figure 3.1: Architect's vision of The Henge obtained from the promotional brochure



Figure 3.2: The signage of the project

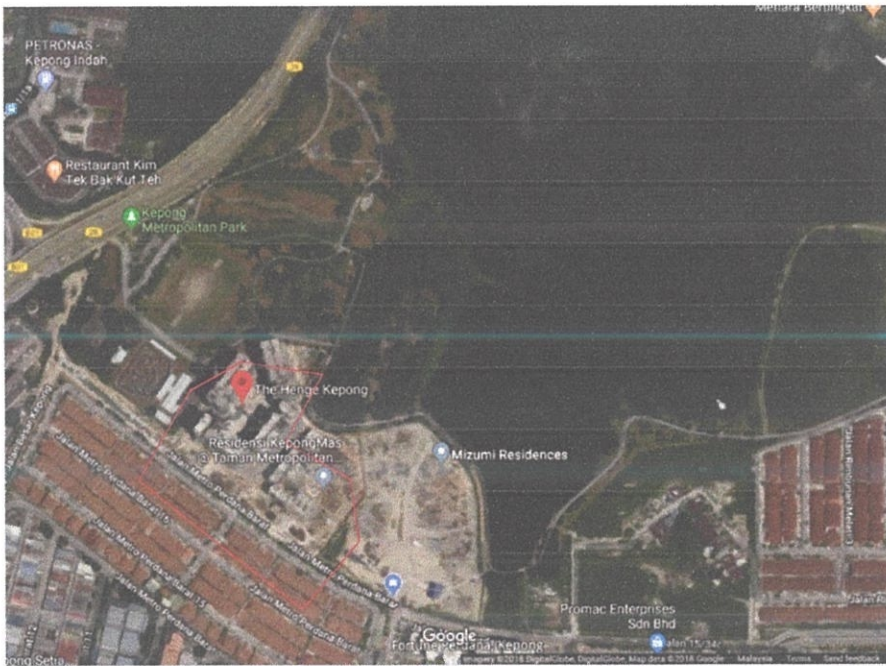





Figure 3.3: The location plan of the project

For this case study, the main focus will be place on the finishes aspect of the building. Or more precisely, the type of finishes was used in the units as well as how they were installed or built. Besides that, to investigate why water leakage occur and how to rectify it.

Table 3.1: List of consultants

Consultant	Company Name & Adress	Contact No.
<p>Client</p> 	<p><u>Aset Kayamas Sdn Bhd</u></p> <p>Lot 33545, Jalan Klang Lama, Bedford Business Park, 58000 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur</p>	<p>Tel :</p>
<p>Architect</p> 	<p>Zone Architect Sdn Bhd</p> <p>D6-3A-13A, Level 3A, Pusat Perdagangan D6, Jalan Sentul, 51000 Kuala Lumpur</p>	<p>Tel :</p>
<p>C & S Consultant</p> 	<p>Advance Consulting Engineers S/B</p> <p>Wisma Zelan, 1, Jalan Tasik Permaisuri 2, Bandar Sri Permaisuri, 56000 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur</p>	<p>Tel :</p>
<p>M&E Consultant</p> 	<p>JY Consult Sdn Bhd</p> <p>22-1, Jalan Bandar Lima Belas, Pusat Bandar Puchong, 47100 Puchong, Selangor</p>	<p>Tel :</p>

<p>Quantity Surveyor</p> 	<p>Vescope Sdn Bhd</p> <p>B-3A-3A Neo Damansara, Jalan PJU 8/1, Damansara Perdana, 47820 Petaling Jaya, Selangor</p>	<p>Tel :</p>
<p>Landscape Architect</p> 	<p>Just Right Design Sdn Bhd</p> <p>No B-7-3A, Block B, Ativo Plaza, No 1 Jalan PJU, Jalan Kenanga SD 9/1, Bandar Sri Damansara, 52200 Kuala Lumpur, Selangor</p>	<p>Tel :</p>
<p>Main Contractor</p> 	<p>Kenwingston Sdn Bhd</p> <p>No. 82, Seksyen 5, Wangsa Maju, KLSC, Jalan Wangsa Delima 6, Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur</p>	<p>Tel : Fax :</p>

Source : Kenwingston Sdn Bhd 2018

3.1 Objective: To gain better understanding about the type of finishes used in the units

Once all the structural stages for the project is over, now it is time to focus on completing the finishes of all the units itself. At this point of the construction, the units themselves are nothing but empty spaces with bare concrete walls, floors and ceilings surrounding them. The type of finishes to be use will dictate the ambience and feels of the unit and can greatly enhance the looks. Now it is time for the interior works to begins, the works that is involved are as below:

- Skimming and painting of the walls
- Tiling works
- Installing of laminated timber flooring

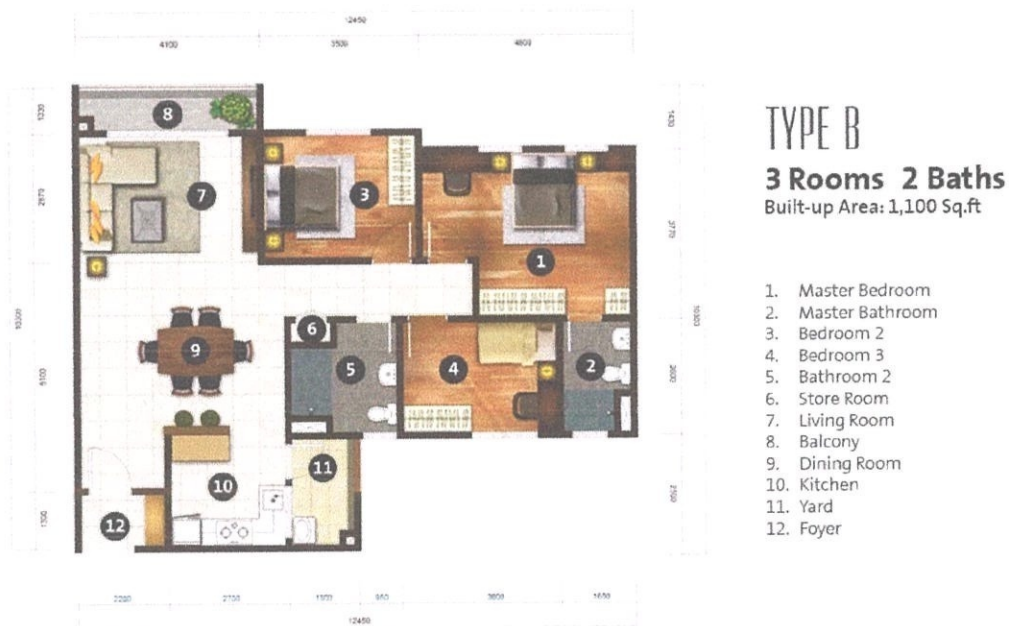


Figure 3.4: The unit's floor plan obtained from the site office

3.1.1. Skim and painting

Skimming and painting is the first step towards completing the units. It is done the earliest because it is much easier to skim and paint the whole walls and ceiling surface when the unit is still 'empty' compared to if the unit has already been installed with tiling and other stuff. Plus, it will also make the cleaning process easier because even if the floor surfaces are covered to avoid the paint from dripping onto it, it will always drip.

Skimming is the process of coating the wall and ceiling surface with a mixture of formulated cementitious skim coat plaster that is apply suitable to be apply on concrete for internal only. Skim coat is usually only done to the interior as it can be very expensive to cover all the interior and exterior surface of the building. Moreover, the purpose of skimming is to achieve smooth durable surface with excellent adhesion property to helps the paint to stick to the wall so there is no need for skimming the exterior surfaces. Skim also is also used to fills in any gap or cracks on the wall.



Figure 3.5: A worker applying skim coating to the wall surface

The type of skim used in this project is Gypsum coating from the company Asian Super Gypsum, they are elected during the tender process as their skim coat is one of the best in the industry.



Figure 3.6: The skim coat used for this project

As for the paint, it comprises of 2 layers. The first layer is the undercoat, it is the first paint that is applied on the wall surface and it meant to cover if there is any patches on the wall surface. This will help in providing evenly thickness of final paint. The next layer is the final layer which is also the final layer.

3.1.2. Tiling works

Tiling is the most common type of floor finishes in Malaysia, this is because it requires little to no maintenance. Tiles also can last for a very long time before showing signs of aging such as discolouration and chirping.

Based on the architectural drawings and design, all the floor surface for the units are to be finish with porcelain tiles except for the few rooms. Those few rooms are 3 bedrooms that is in the units. Porcelain tiles is made from very compact clay that is then fired in the oven at a very high temperature. According to the architect, he told me that they decided to choose porcelain tiles because it have many advantages such as:

a) Resistant to wear

By this is that, the tiles are much more resistant and tougher compared to normal ceramic tiles. The tiles surface will not be easily scratched whenever sharp object scratches again it. The house owner wouldn't have to worry about they damaging their tiles surface whenever they are moving their furniture. The tiles will also last longer and wouldn't start decolourizing for a long time

b) Low maintenance

When choosing floor finishes, it is very crucial to think of the maintenance works required to keep it looks good. The reason porcelain tiles have become the number one choice of floor finishes in Malaysia is because of how easy it is to maintain them. A quick sweep or mopping it will clean it for good

c) The aesthetic appeal

Porcelain tiles come in various shapes and designs, each of it owns can truly make the house looks stunning.

d) More moisture resistant

One of the things that we need to keep in mind when choosing tiles are that it needed to be able to withstand moisture. Excessive moisture is not good for tiles as It may lead to cracking or even worse, resulting the tiles to be completely detached from the base concrete surface. Since porcelain tiles structure are much dense and less porous, moisture wouldn't be able to seep through it, so it will be able to withstand much moisture.

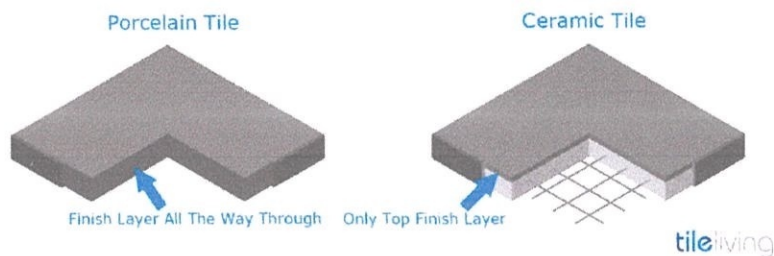


Figure 3.7: Comparison between porcelain tile and ceramic tile

Although porcelain tiles come with many advantages and benefits, it also has few disadvantages with it such as:

a) Expensive

The reasons porcelain tiles is more expensive compared to ceramic tiles is because it uses much denser clay. On top of that, the process and way of making it also contribute to the reason of why it is expensive. Porcelain tiles needed to be heated to a very high temperature hence it will need more time and manpower to make it.

b) Difficult to install

Porcelain tiles are denser and heavier, that makes it quite hard to lift it and adjust it into the right place. Besides that, because of the dense property of it, it is harder to cut it into shape. Because of that, only professionals will be able to install it nicely.



Figure 3.8: Porcelain tiles to be install for the unit



Figure 3.9: Porcelain tiles in it package

3.1.3. Timber floorings

For this project, the type of timber floorings chosen is laminated timber floorings. Laminated timber floorings are type of timber floorings made with several layers of thinly cut woods that are then glued together in a way that the wood grains are parallel to each other. Then a sheet of paper with very high-resolution image of wood is glued on top of it. Lastly, it is then covered with final sheet of laminated plastic for protecting it from damages and preserve the design. The great thing about it is, it looks exactly like real wood.

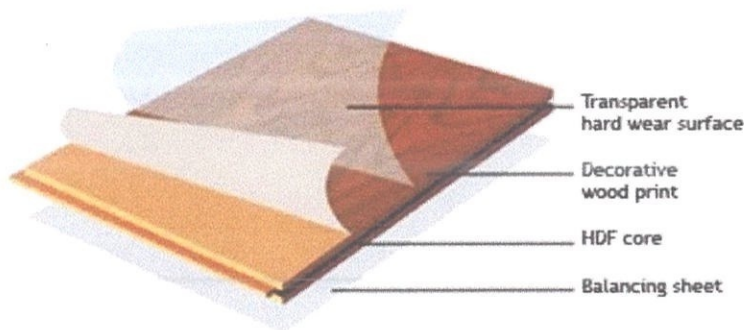


Figure 3.10: Cross section of laminated timber flooring


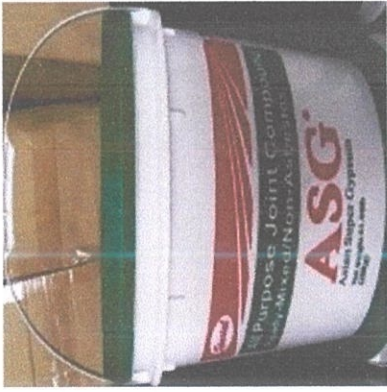
This kind of floor finishes is only used for the 3 bedroom that is in the units. Which is the master bedroom, bedroom 2 and bedroom 3. It creates a totally different ambient and feels to the bedroom compared to the conventional tiles that is typically used in Malaysia. On top of that, it acts as a ‘divider’ separating the bedrooms from the corridor, living rooms and the bathroom.


Since this unit is priced at almost RM 500,000 the architect have to make sure that the owners buying it feels like it’s a half million ringgit house and not just another typical property. That is also one of the reasons why they opt for laminated timber flooring as the finishes for the bedroom.


The various advantages of laminated timber floorings are:

- I. It looks exactly like the real hardwood
- II. Is priced much cheaper compared to real wood
- III. Very easy to install and doesn’t take much time
- IV. Gives the premium feels to the room



3.2.1 Method statement for: Skim coating



NO	OPERATION	SEQUENTIAL DIAGRAM	MACHINERY & PLANT	MANPOWER / LABOR	EQUIPMENT	DURATION
1	<p>Surface examination</p> <ul style="list-style-type: none"> - examine the surface and make sure it is clean and free from dust, oil or any foreign materials - fix and fills all the holes and cracks present on the wall surface 	 <p>Figure 3.11: A site supervisor inspecting the surface</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 3 general labour per unit 	<ul style="list-style-type: none"> - construction grade working light 	1 day
2.	<p>Prepare the materials</p> <ul style="list-style-type: none"> - open the bucket - add a little bit of water to make it easier to mix the compound - use a metal mixing rod attached to a drill to mix the compound evenly 	 <p>Figure 3.12: The skim coating in its bucket</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 1 general labour 	<ul style="list-style-type: none"> - a metal mixing rod attached to a drill 	1 day


<p>3. Apply the skim coat</p> <ul style="list-style-type: none"> - use a skimmer plate to hold the compound on the left hand - use the compound applicator on the right hand - apply the first scoop on the wall and spread it upward using the applicator - make sure that each new scoop overlaps with the last <p>Notes:</p> <ul style="list-style-type: none"> - the compound must be applied evenly to avoid any uneven surface when painting 	 <p>Figure 3.13: A general labour skimming</p>	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - 1 site supervisor - 3 general labour per unit 	<ul style="list-style-type: none"> - ladder or scaffolding - skimmer plate - the skim applicator 	<p>3 days</p>
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<p>4</p> <p>Let the skim coat dry</p> <ul style="list-style-type: none"> - Make sure to open the windows slightly to allow better air circulation <p>Notes:</p> <ul style="list-style-type: none"> - make sure the rain will not enter through the windows 	 <p>Figure 3.14: A unit that have been skim coated</p>	<p>-</p>	<p>- 1 site supervisor</p>	<p>1 day</p>
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3.2.2 Method statement for: Painting


NO	OPERATION	SEQUENTIAL DIAGRAM	MACHINERY & PLANT	MANPOWER / LABOR	EQUIPMENT	DURATION
1.	<p>Prepare the tools and supply</p> <ul style="list-style-type: none"> - Pour the paint from the barrel into a slightly small bucket - Add some water if needed - Use a paint mixer to mix the paint evenly 	 <p>Figure 3.15: The paint in its barrel from the factory</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 2 painters 	<ul style="list-style-type: none"> - Paint buckets - Paint mixer - Paint rollers - Paint brushes 	1 day
2.	<p>Cover the areas that needed to be protect</p> <ul style="list-style-type: none"> - Use masking tape to protect door knob, frames and also electrical switches - Use plastic sheet to cover the floor 	 <p>Figure 3.16: Two painters laying the protective sheet</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 3 painters 	<ul style="list-style-type: none"> - Masking tape - Plastic sheet 	1 day



<p>3.</p>	<p>Apply the undercoat</p> <ul style="list-style-type: none"> - Roll the paint roller onto a paint spreader - Paint all the wall and ceiling surfaces <p>Notes:</p> <ul style="list-style-type: none"> - make sure the paint in the up and down technique 	 <p>Figure 3.17: A painter is painting the undercoat</p>	<p>-</p>	<ul style="list-style-type: none"> - 1 site supervisor - 3 painters 	<ul style="list-style-type: none"> - Paint rollers - Paint brushes - Paint spreader 	<p>2 days</p>
<p>4.</p>	<p>Paint the finishes coat</p> <ul style="list-style-type: none"> - Roll the paint roller onto a paint spreader - Paint all the wall and ceiling surfaces <p>Notes:</p> <ul style="list-style-type: none"> - make sure the paint in the up and down technique 	 <p>Figure 3.18: Two painters painting the finishes coat</p>	<p>-</p>	<ul style="list-style-type: none"> - 1 site supervisor - 3 painters 	<ul style="list-style-type: none"> - Paint rollers - Paint brushes - Paint spreader 	<p>2 days</p>

5.	<p>Let the paint dry</p> <ul style="list-style-type: none"> - Make sure to open the windows slightly to allow better air circulation <p>Notes:</p> <ul style="list-style-type: none"> - make sure the rain will not enter through the windows 	 <p>Figure 3.19: A room that have been painted</p>	-	- 1 site supervisor	1 day
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3.2.3 Method statement for: Installation of tiles

NO	OPERATION	SEQUENTIAL DIAGRAM	MACHINERY & PLANT	MANPOWER / LABOR	EQUIPMENT	DURATION
1	<p>Prepare the tools and materials</p> <ul style="list-style-type: none"> - Make sure the tiles are the correct colour and design - Inspect the tiles for any defects 	 <p>Figure 3.20: Porcelain tiles in its packaging</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 2 tilers 	<ul style="list-style-type: none"> - Porcelain tiles - Cements - Tile spacer - Notched trowel 	1 day
2.	<p>Prepare the floor surface</p> <ul style="list-style-type: none"> - Remove any rubbish or any foreign material - Use broom to sweep the floor from any dust 	 <p>Figure 3.21: The floor surface after clean off</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 2 tilers 	<ul style="list-style-type: none"> - Shovel - Broom - Dustpan 	1 day

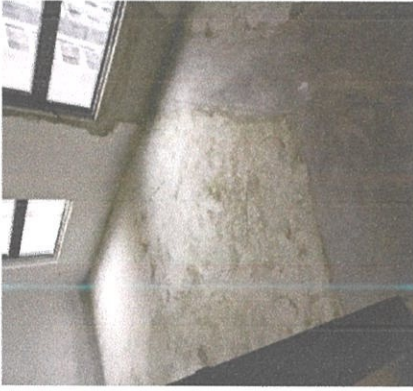
<p>3.</p>	<p>Apply the adhesive at the floor surface</p> <ul style="list-style-type: none"> - Scoop the adhesive and spread it on the floor surface - The adhesive must be not too thin and not too thick - Use a notched trowel to make a raking pattern - Adhesive must be spread evenly 	 <p>Figure 3.22: The adhesive is spread on the floor surface</p>	<p>-</p>	<ul style="list-style-type: none"> - 1 site supervisor - 3 tilers 	<ul style="list-style-type: none"> - Notched trowel 	<p>1 day</p>
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4.	<p>Install the tiles starting from the centre of the room</p> <ul style="list-style-type: none"> - Be sure to check the tiles position first before installing to the adhesive - Use a level to make sure the tile degree <p>Notes:</p> <ul style="list-style-type: none"> - Do not twist the tiles, instead 'drop' it directly on the adhesive 	 <p>Figure 3.23: A tiler is installing the tiles</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 3 tilers 	<ul style="list-style-type: none"> - Porcelain tiles - Leveller - Notched trowel - Tile spacer 	1 day
5.	<p>Let all the adhesive dry</p> <ul style="list-style-type: none"> - Let it dry for at least one night - Do not step on the tiles as it may move it from the original place 	 <p>Figure 3.24: The porcelain tiles after carefully installed</p>	-	- 1 site supervisor	-	1 day

6.	<p>Grouting process</p> <ul style="list-style-type: none"> - Use a rubber float and apply enough grout to the tiles - Press the grout into the joints - Skim the excess grout - Use a damp sponge to work across the joints 	 <p>Figure 3.25: The grouting process</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 2 tilers 	<ul style="list-style-type: none"> - Rubber float - sponge 	1 day
7.	<p>Let the grouting completely dry</p> <ul style="list-style-type: none"> - Let it dry for at least one night - Do not step on the tiles as it may move it from the original place <p>Note :</p> <ul style="list-style-type: none"> - Make sure the grouting are 	 <p>Figure 3.26: Porcelain tiles after been grout</p>	-	- 1 site supervisor	-	1 day


	totally dried before cleaning it							
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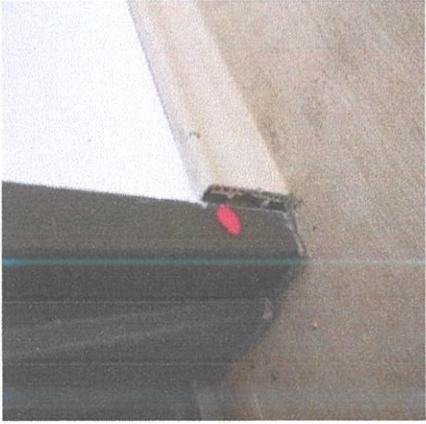
3.2.4 Method statement for: Installation of the laminated timber flooring


NO	OPERATION	SEQUENTIAL DIAGRAM	MACHINERY & PLANT	MANPOWER / LABOR	EQUIPMENT	DURATION
1.	<p>Prepare the floor surface</p> <ul style="list-style-type: none"> - Removes all foreign materials from the floor - Sweep the floor to remove all the dust - Check the floor level by using moisture meter to make sure it is perfectly level 	 <p>Figure 3.27: The floor surface after being cleaned</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 2 general labour 	<ul style="list-style-type: none"> - Broom - Shovel - Dustpan - Bubble level 	1 day

2.	<p>Let the timber board set</p> <ul style="list-style-type: none"> - Place unopened package of the boarding in the room that is going to be install - This is to allow it to adjust to the room temperature and humidity <p>Note:</p> <ul style="list-style-type: none"> - The aim of this step is to minimize shrinkage and expansion to the board 	 <p>Figure 3.28: Timber board let to 'rest'</p>	-	- 1 site supervisor	- Laminated timber board	2 days
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3.	<p>Check the moisture content of the floor</p> <ul style="list-style-type: none"> - Use a protimeter prong test scale to measure the sub floor moisture content - The readings must not be more than 15% - If it is more, the floor must be first let to dry 	 <p>Figure 3.29: Touch the protimeter tip's at the floor surface to get a reading</p>	-	- 1 site supervisor	- Protimeter prong test scale	1 day
4.	<p>Lay the protective sheet</p> <ul style="list-style-type: none"> - Cover all of the floor surface using protective sheet - Tape the plastic together using the moisture resistant adhesive tape <p>Note</p>	 <p>Figure 3.30: Protective sheet to be use</p>	-	- 1 site supervisor - 2 skilled carpenters	- Protective sheet - Plastic tape - Scissor	1 hour

	<ul style="list-style-type: none"> - The sheet are to protect the boarding against moisture and to prevent squeaking sound when people walk on the board 					
5.	<ul style="list-style-type: none"> - Install the timber boarding <ul style="list-style-type: none"> - Start placing the board from the corner of the room and works gradually towards the room's door - Place spacer between the board and the wall - Arrange the board rows by row - Use rubber hammer to push the board into place and 	 <p>Figure 3.31: A carpenter carefully installing the boards</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 2 skilled carpenters 	<ul style="list-style-type: none"> - Laminated timber flooring - Spacer - Rubber hammer 	1 day

	interlock each other					
6.	<p>Install the skirting and endcap</p> <ul style="list-style-type: none"> - Remove the spacer and start installing the skirting - Use the clip and glue provided to attach it to the wall 	 <p>Figure 3.32: Skirting before the end cap is installed</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 2 skilled carpenters 	<ul style="list-style-type: none"> - Rubber hammer - Wood clip - Wood adhesive 	1/2 day

7.	<p>Silicone</p> <p>Use the silicone that is provided with the board to seal all the jointing of the skirting</p>	 <p>Figure 3.33: The wood-grade silicone</p>	-	<ul style="list-style-type: none"> - 1 site supervisor - 2 skilled carpenters 	<ul style="list-style-type: none"> - Wood silicone 	1 day
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- **3.3 Objective:** To determine the reason water leakage occur and how to rectify it

Construction world is a world where even after months of planning all of our works flow, some problem will always happen out of the blue. It is the project manager and the supervisor responsibility to solves it in the as soon as possible to avoid any delay to the project.

For example, during the industrial training, a leakage originating from a water pump room have happened and affect a house unit beside it. The cause of this incident is improper waterproofing of the pump room's floor and wall. Because of this, a unit's bedroom that is located next to it have been flooded and its laminated timber flooring is damaged due to the water present.



Figure 3.34: The timber board soaked in water

So, to fix the problem, the Site Manager come to inspect and evaluate the situation. He then proposes ideas need to be taken to solve it quickly because the handover date is only a week away during the incident.



Figure 3.35: The project manager inspecting the situation

After he take a look at the possible source of the leakage, he then instructs a general labour to hack the wall a bit in order to confirm his hypothesis.



Figure 3.36: A worker hacking the wall

After the wall is hacked a bit, the source of the water coming out have been confirmed. And as the manager suspect, the water is indeed coming from the water pump room next to the wall. He then calls the waterproofing specialist to solve the case.



Figure 3.37: The waterproofing specialist inspecting the situation

Next, the specialist proposes a method to stop the leakage. He suggests to the Site Manager to use Polyurethane (PU) Injection method to stop the water. Polyurethane (PU) Injection is a method where the compound is pour down into an injector which will then thin out the compound to a suitable state before injecting it into the wall's pore. Once it has been injected, it will then start to expand and seal out all the holes. This will stop the water source and allow the bedroom to dry.



Figure 3.38: The specialist preparing the PU



Figure 3.39: A close up view of the injector



Figure 3.40: The waterproofing compound being injected



Figure 3.41: The PU once it has hardened up

After the Polyurethane has been injected into the leakage source, it is then let to harden for a full day. A day later, the bedroom's wall is inspected one more time to verify either the PU injection has successfully seal the hole and stop the leakage. The room is let to dry for another 2 days before the re-installation of the laminated timber flooring take place.

CHAPTER 4.0

CONCLUSION

Overall based on my involvement with the construction team at The Henge, Kepong project, it can be concluded that the completing and installing finishes stage is one of the key stage in a construction. The structural stage is indeed the most important stage for a construction but without the finishes stage, the units will be empty, nothing but a solid box of concrete all around it. Because of that, it is very important to select the best kind of finishes to be use because of the material's different characteristic and properties. Based on the first objective, the reason why the finishes need to be install correctly is to avoid future damages or complication to the finishes such as peeling of the paint, cracks to the porcelain tiles and also damage to the timber flooring due to improper installation. Hence, it is the site supervisor and the workers responsibility to carried it out according to the spec.

Next, for the third objective, which is the major problem that occur during the finishes stage, the causes of the leakage were thoroughly explained. Starting from looking for the source of water all the way to how to stop it which is by using Polyurethane Injection method

From the study, the most important aspect of the finishes stage is to always know how the installations are as well as how to solve any problem that may occurs during the work.

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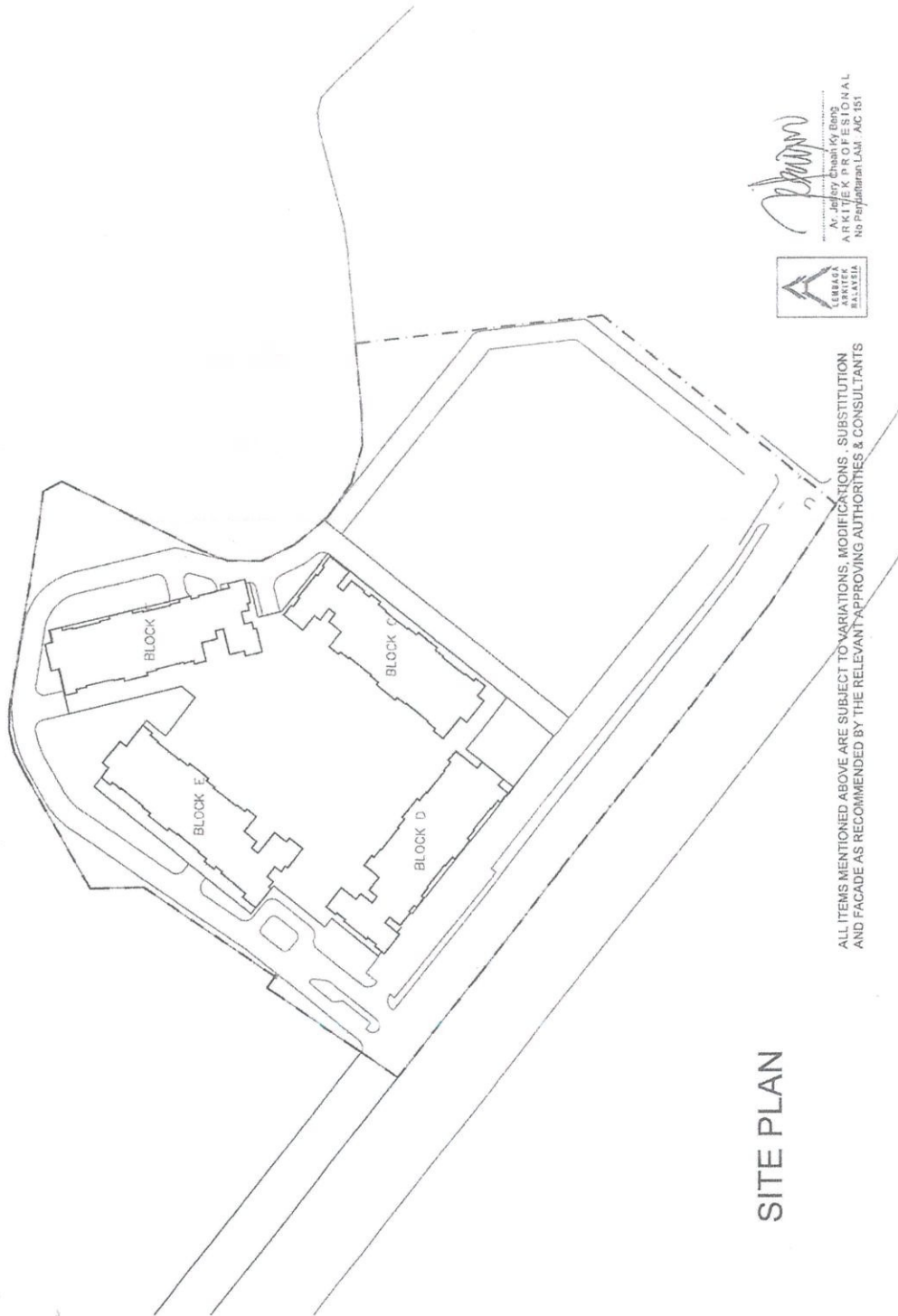
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APPENDIX

Appendix (A) The drawing plan of the project



Source: Kenwingston Sdn Bhd

Appendix (B) The project's detail

CADANGAN PEMBANGUNAN 2986 UNIT PANGSAPURI YANG MENDUNGI:

- 1) FASA 1
2 BLOK PANGSAPURI MAMPU MILIK (1514 UNIT) YANG TERDIRI DARIPADA:-
 - i) BLOK A - 41 TINGKAT (790 UNIT)
 - ii) BLOK B - 41 TINGKAT (724 UNIT)TERMASUK 8 TINGKAT PODIUM TEMPAT LETAK KERETA BERSERTA KEMUDAHAN PENDUDUK, PENCAWANG ELEKTRIK, KEBUK SAMPAH DAN PONDOK PENGAWAL.
- 2) FASA 2
4 BLOK PANGSAPURI (1472 UNIT) YANG TERDIRI DARIPADA:-
 - i) BLOK A - 45 TINGKAT (368 UNIT)
 - ii) BLOK B - 45 TINGKAT (368 UNIT)
 - iii) BLOK C - 45 TINGKAT (368 UNIT)
 - iv) BLOK D - 45 TINGKAT (368 UNIT)TERMASUK 8 TINGKAT PODIUM TEMPAT LETAK KERETA DAN 1 TINGKAT TEMPAT LETAK KERETA ARAS BAWAH TANAH, BERSERTA KEMUDAHAN PENDUDUK, KOLAM RENANG, PENCAWANG ELEKTRIK, KEBUK SAMPAH DAN PONDOK PENGAWAL.
- 3) KEDAI
35 UNIT KEDAI DI ARAS BAWAH DAN TINGKAT 1

DI ATAS SEBAHAGIAN LOT 67619 (10.089 EKAR), JALAN METRO PERDANA BARAT, TAMAN METROPOLITAN, KEPONG, MUKIM BATU, DAERAH KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR

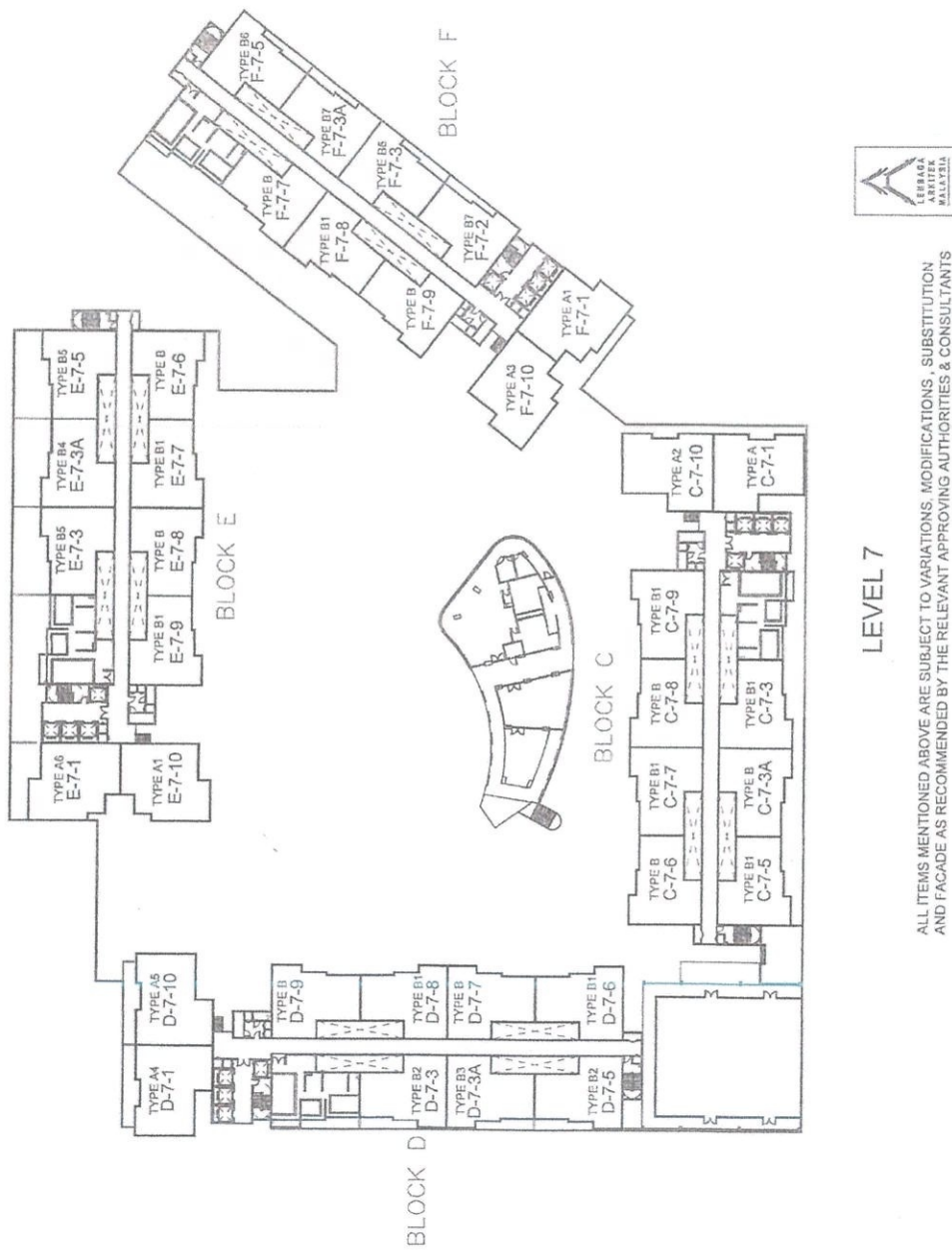
UNTUK TETUAN SINERJUTA SDN BHD



ALL ITEMS MENTIONED ABOVE ARE SUBJECT TO VARIATIONS, MODIFICATIONS, SUBSTITUTION AND FACADE AS RECOMMENDED BY THE RELEVANT APPROVING AUTHORITIES & CONSULTANTS

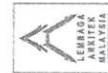
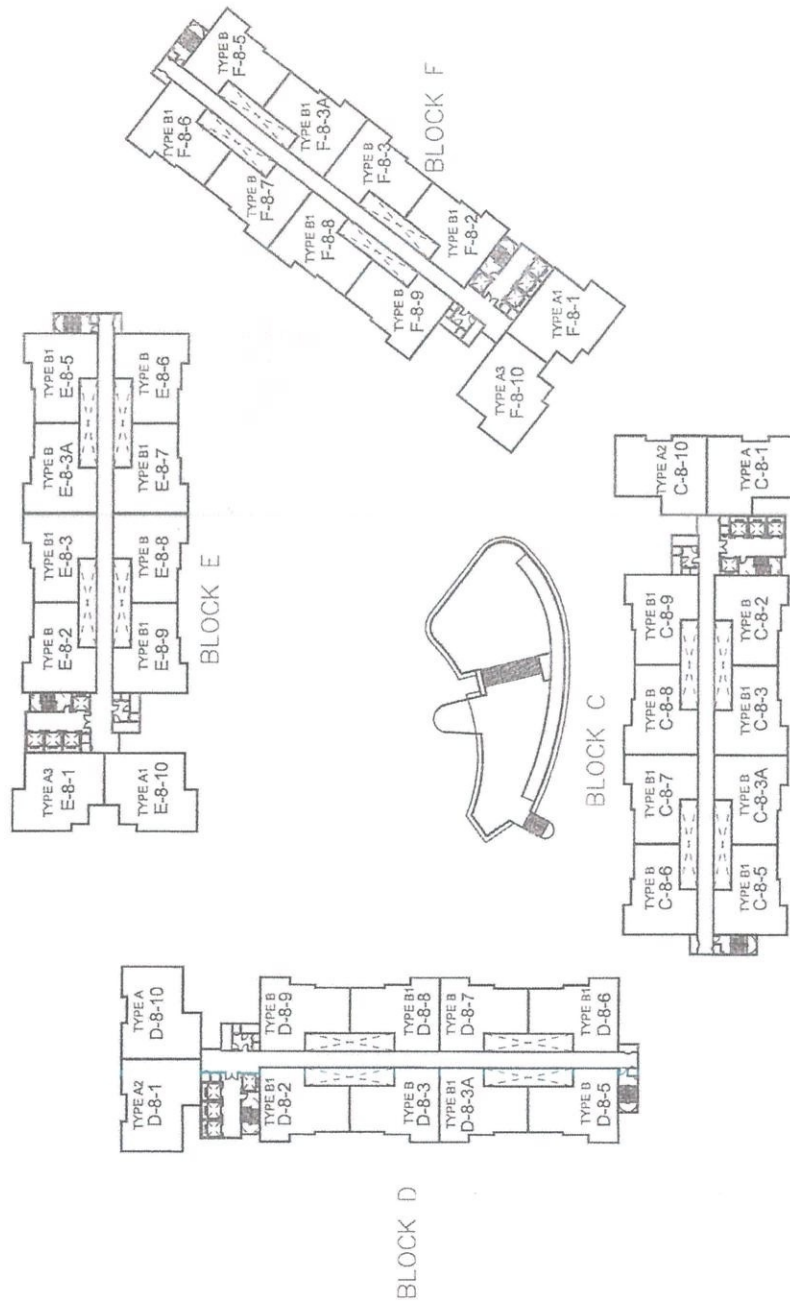
Source: Kenwingston Sdn Bhd

Appendix (B) The building plan of level 7 (shows the podium and facilities)



Source: Kenwingston Sdn Bhd

Appendix (C) Floor plan of level 8 (shows the layout of the units)

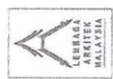
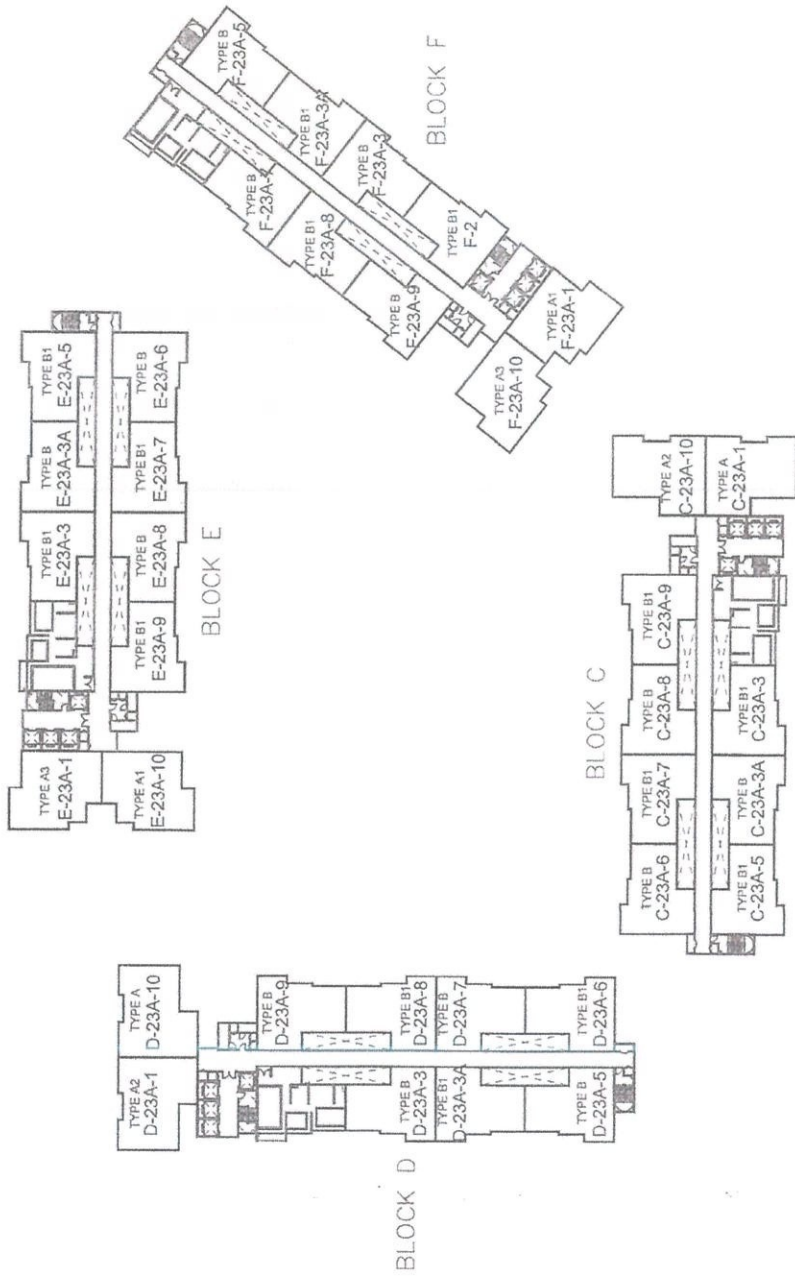


LEVEL 8

ALL ITEMS MENTIONED ABOVE ARE SUBJECT TO VARIATIONS, MODIFICATIONS, SUBSTITUTION AND FACADE AS RECOMMENDED BY THE RELEVANT APPROVING AUTHORITIES & CONSULTANTS

Source: Kenwinston Sdn Bhd

Appendix (D) Floor plan of level 24 (shows the location of the pump room for each blocks)

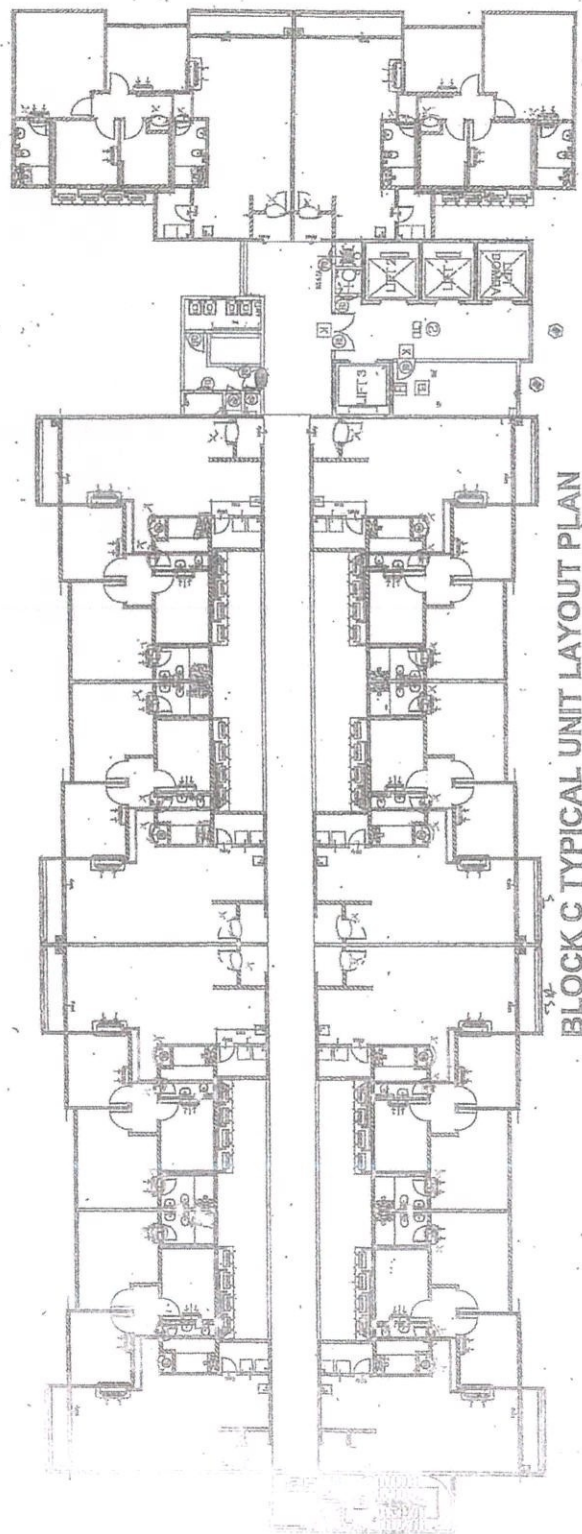


LEVEL 23A

ALL ITEMS MENTIONED ABOVE ARE SUBJECT TO VARIATIONS, MODIFICATIONS, SUBSTITUTION AND FACADE AS RECOMMENDED BY THE RELEVANT APPROVING AUTHORITIES & CONSULTANTS

Kenwingston Sdn Bhd

Appendix (E) Floor plan of a block



BLOCK C TYPICAL UNIT LAYOUT PLAN

Source: Kenwingston

Appendix (F) Detail drawing of level 8

Source: Kenwingston Sdn Bhd
Appendix (G) Detail drawing of level 24

Source: Kenwingston Sdn Bhd