



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

**PRACTICAL REPORT TITLE
TYPE OF TILES AND THEIR APPLICATION IN BUILDING**

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**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

MUHAMMAD ZAHID BIN ZAINOL

2017206484

entitled

TILE FINISHES AT RESIDENSI KEPONGMAS, KEPONG

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

Report Supervisor : En. Noor Azam Bin Yahaya

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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 Kenwingston 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.

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Date :

ACKNOWLEDGEMENT

Alhamdulillah, praise to Allah, the Most Merciful, the Most Graceful.

The internship opportunity I had with Kenwingston Sdn. Bhd. was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be a part of it. I am also grateful for having a chance to meet so many wonderful people and professionals who led me through this internship period.

Bearing in mind previous I am using this opportunity to express my deepest gratitude and special thanks to the Project Manager, Mr. Lee Keng Seng who in spite of being extraordinarily busy with his duties, took time out to hear, guide and keep me on the correct path and allowing me to carry out my project at their esteemed organization.

I express my deepest thanks to the Project Director, Mr. Yeoh Boon Lim for guiding me on how to be a great supervisor, the Site Supervisor of my block as well as the Project Manager, Mr. Lee Keng Seng for helping me a lot and also thanks to all the Kenwingston team, Mr. Yeong as M&E Coordinator, Puan Siti Nurafifah as technical engineer and all my team mates in this project for taking part in useful decision & giving necessary advices and guidance and arranged all facilities to make life easier. I choose this moment to acknowledge them contribution gratefully.

I would also like to thank ALL the UiTM lecturers that have taught and nurtured me in becoming a better student and person. I would also like to extend my deepest appreciation to the lecturers who are directly involved during my training stint. To En Noor Azam Bin Yahaya, Supervising Lecturer, En Muhammad Naim Bin Mahyuddin, Practical Training Coordinator and Dr. Dzulkarnaen Bin Ismail, Programme Coordinator, I value the time, effort, encouragement and ideas that they have contributed towards the successful completion of my training, this report and the valuable knowledge that have been shared over the last few semesters.

Last but not least, my special thanks to my beloved parents for their sacrifices over the years. I perceive as this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their

improvement, in order to attain desired career objectives. Hope to continue cooperation with all of you in the future.

Thank you so much.

ABSTRACT

A tile is a thin object usually square or rectangular in shape. Tile is a manufactured piece of hard-wearing material such as ceramic, stone, metal, baked clay, or even glass, generally used for covering roofs, floors, walls, or other objects such as tabletops. Alternatively, tile can sometimes refer to similar units made from lightweight materials such as perlite, wood, and mineral wool, typically used for wall and ceiling applications. While finishes are usually used in the final part of the construction or manufacturing process, forming the final surface of an element which can protect the element from impact, water, frost, corrosion, abrasion, and or they can be decorative. Finishes commonly relate to internal surfaces, but they may also be applied to external elements. Therefore, this report will be discussed in more detail about types and uses of tile finishes. Next, to study the installation method of tile finishes. Lastly is to identify types of defects on tiles that usually occurred. This report mainly based on construction site named Residensi KepongMas, Kepong under the company Kenwingston Sdn Bhd. Residensi KepongMas refers to a reasonably priced, high-rise condominium nestled at kepong and is easily accessible via the Middle Ring Road. For this study, it is found that the main type of tile used for the case study building are ceramic tiles. Secondly, installation method requires good planning and workmanship. Lastly, defects may occur due to lack of supervision and poor workmanship.

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CHAPTER 1.0

INTRODUCTION

1.1 Background and Scope of Study

Scope of study for this report is practically viewing and focus on the tile finishes at Residensi Kepongmas units. The scope of study for this report is located at the main propose of this report that will represent the types and use of tile finishes. Next, this report will briefly explain the method of construction of tile finishes at Residensi Kepongmas. Lastly, the types of defects that can occur on tile finishes.

1.2 Objectives

The main objectives for this report are as follows:

- i To study type of tiles
- ii To describe the installation method of tiles
- iii To identify types of defects on tiles

1.3 Method of Study

Various methods are used in obtaining information in the process of completing this report which is by visual observation of constructing tiles. Next, is by interviewing Site Supervisor and Clerk of Work. Lastly, by using the internet to obtain further information on tiles finishes.

1. Observation

Overall methodology of this report is actually based on visual observation conducted while at the construction site. Observations that have been made should be recorded and photographed as evidence while doing a report. The observation at the construction site will not only provide a lot of information but it can also give you some effective and useful experience to the author. By observing on how work is done at construction site we can broaden our views on how to overcome problems that may occur at construction site.

2. Interview

Interviews are very efficient and effective way for obtaining more information. Interviews had been done with the site supervisor and clerk of work during the assessment for obtaining a precise information at the construction site as they have years of experience and knowledge at construction site. Interview is one of the direct ways to get information from qualified respondent.

3. Internet

Internet is one of the easiest and quickest ways to obtain the necessary information.

By surfing the internet all there is to do is open the web page on the searched topic and information can be obtained quickly and accurately rather than other methods which required more work and time consuming.

CHAPTER 2.0

COMPANY BACKGROUND

2.1 Company profile

Kenwingston Sdn Bhd is an enterprise in Malaysia, with the main office in Kuala Lumpur. It operates in the Construction of Buildings industry. The company was established on 13 July 2010. From the latest financial highlights, Kenwingston Sdn Bhd reported a net sales revenue increase of 146.79% in 2017g. Its total assets recorded a growth of 108.79%. The net profit margin of Kenwingston Sdn Bhd decreased by 0.04% in 2017.

Kenwingston Sdn Bhd HQ located at No.82, Jalan Wangsa Delima 6, Pusat Bandar Wangsa Maju (KLSC), Seksyen 5, Wangsa Maju, 53300 KL. Kenwingston Sdn Bhd contact number is 03-41416338 while for fax is 03-41416228.

Last year, Kenwingston made its first foray into property development as part of its rationalisation and diversification programme. The projects involved building semidees and bungalows in Pulau Indah and link house in Salak Tinggi, both in Selangor. The Pulau Indah project comprises 27 units and the Salak Tinggi development, 30.

This year, Kenwingston also took on its biggest project which is Kenwingston Square Garden (KSG) in Cyberjaya which has a gross development value of RM 500 million. The group bought the freehold land located next to Sejati Residences from Setia Haruman Sdn Bhd last year for 50 million. Covering the mixed use development will comprise Kenwingston Business Centre and Kenwingston Residences. The business centre will have an 8-storey office tower which has a total net area of 120,000sq ft on top of a 2-storey retail podium.

Currently, Kenwingston Sdn. Bhd. Has total staff strength of 201 employees under its employment.

2.1.1 Registered Business Name

Kenwingston Sdn Bhd

2.1.2 Company Registration No

0907815 P

2.1.3 Nature of business

General Constructions

2.1.4 Business Address

No 82, Jalan Wangsa Delima 6, Pusat Bandar Wangsa Maju (KLSC),
Seksyen 5, Wangsa Maju, 53300 Kuala Lumpur.

2.1.5 Date of Registration

13th July 2010

2.1.6 Company Mission

- i. We value our staff and create an enjoyable work environment which allows personal achievement that leads to a loyal and productive occupation.
- ii. We strive to meet and go beyond our client's expectations to foster long term partnership.
- iii. We treat our sub-trades and suppliers with respect to develop a team approach where experience is applied with dedicated enthusiasm.

2.1.7 Directors / Shareholders

- i. Dato' Lovis Lam Kong Tang
- ii. Eddie Lim Kim Eng
- iii. Edward Lim Wei Chuan
- iv. Jimmy Chia Hue Chian
- v. Lew Kok Sin
- vi. Yeoh Boon Lim
- vii. Ryan Tang Seng Wei

2.1.8 Official Logo & Symbols

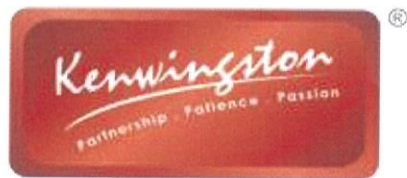


Figure 1 Kenwingston Sdn Bhd logo and symbol

Source: Kenwingston.com

2.2 List of Project

2.2.1 Completed Projects

Table 1 List of Completed Project

Bil.	Name	Location	Project	Start date	Complete date	Amount (RM)
1.	Vue Residence Jalan Pahang, Kuala Lumpur	Seksyen 47 dalam Bandaraya Kuala Lumpur.	Serviced Apartment of 272 Units, (24 Floors).	15 September 2011	25 October 2013	40,000,000.00
2.	De Centrum Residence,Bangi.	Jalan Ikram-Uniten, Kawasan Institusi Bangi, 43000 Bandar Baru Bangi, Selangor.	Small Office Home Office (SOHO) – 19 Storey	7 August 2015	6 August 2015	142,800,000.00

Bil.	Name	Location	Project	Start date	Complete date	Amount (RM)
4.	Seasons Garden, Wangsa Maju	Jalan 26/26, Seksyen 10, Wangsa Maju, 53300 Kuala Lumpur.	Serviced apartment of 1502 units (35 floors)	1 October 2014	30 September 2017	310,108,133.00
5.	Almyra Residence	Bandar Puteri Bangi, 43000, Kajang, Selangor.	Mix Development (669 units service apartment)	24 January 2015	23 July 2017	169,000,000.00
6.	Conezion IOI Resort City	City, Lebuhr IRC, IOI Resort, 62502 Putrajaya, Wilayah Persekutuan Putrajaya.	Apartment (864 units)	18 December 2014	17 September 2017	320,000,000.00
7.	Parkhill Residence	Bukit Jalil, 57000 Kuala Lumpur, Federal Territory Of Kuala Lumpur.	4 high rise apartment towers on podium with 2600 units	13 February 2016	15 August 2018	450,000,000.00

Source: kenwingston.com

2.2.2 Project in Progress

Table 2 List of Ongoing Project

Bil.	Name	Location	Project	Start date	Expected Completion date	Amount (RM)
1.	KL Traders Square	289, Jalan Gombak, Kampung Kuantan, 53000 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.	Mix Development (31000 unit apartments)	10 August 2015	15 September 2020	850,000,000.00
2.	The Henge Kepong	Jalan Metro Perdana Barat, Taman Metropolitan, 52100 Kuala Lumpur, Wilayah Persekutuan.	Mix Development (2986 units apartment)	August 2016	30 April 2019	503,000,000.00
3.	The Societe, Desa Sri Hartamas Hartamas	Desa Sri Hartamas, Sri Hartamas, Kuala Lumpur	Mix Development	N/A	N/A	24,915,041.53
4.	The Havre Residence	Bukit Jalil, 57000 Kuala Lumpur, Federal Territory of Kuala Lumpur	Mix Development (1052 units)	2018	2020	N/A

5.	Kenwingston Square Garden, Cyberjaya	Persiaran Bestari, Cyberjaya, 63000 Cyberjaya, Selangor	Mix Development	N/A	14 April 2019	N/A
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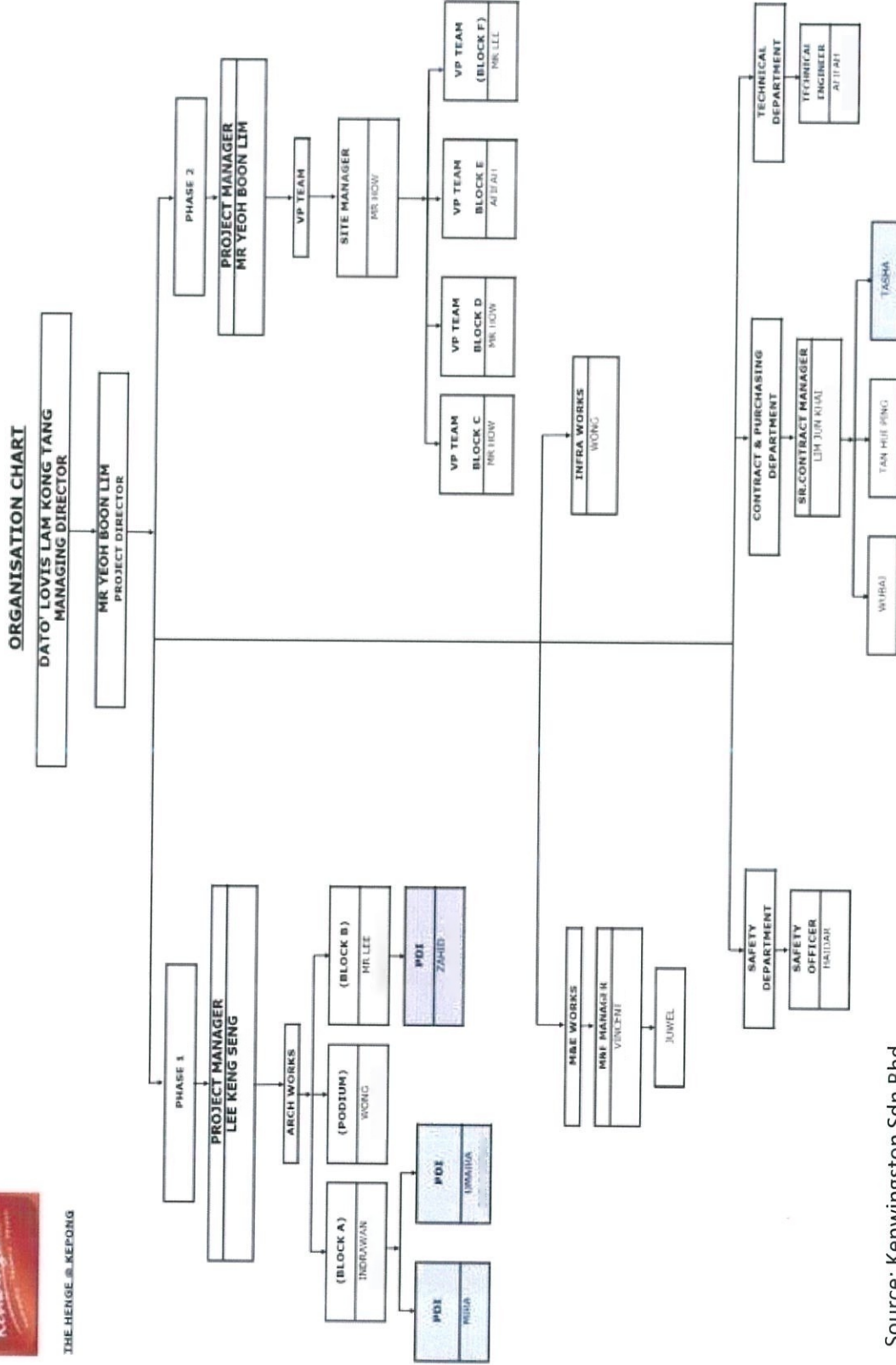
Source: kenwingston.com

2.3 Organization Chart



THE HENGE @ KEPONG

DATE : 31 AUGUST 2019



Source: Kenwingston Sdn Bhd

Figure 2 Organization Chart

LEGEND
 TRAINEE

CHAPTER 3.0

TILE FINISHES AT KEPONGMAS

3.1 Introduction to Tiles Finishes

This project consists of 2 phases which is Phase 1 and Phase 2. Phase 1 consists of Two blocks of affordable apartments which is Block A with 41 floors consisting of 790 units and Block B with 41 floors consisting of 724 units which totals up to 1514 units for phase 1. In phase 1 project also consist of many facilities including 7 levels of parking podium with resident facilities, multi-purpose hall, electrical substation, refuse chamber and a guard house. Meanwhile for Phase 2 it consists of 4 blocks of apartment which is Block C, D, E and F Phase 2 has a total of 1472 units consisting of 45 floors and 368 units per block. This phase 2 project also consist of many facilities which include 8 levels of parking podium, 1 storey of underground car park along with resident facilities such as swimming pool, gym, rest area, sauna room, electrical substation, refuse chamber, guard house and 35 units of confinement center at ground floor and level 1. This project is built with total construction cost of RM 503,000,000.00.



Figure 3 Project signboard

The developer for this project is Aset Kayamas Sdn Bhd and Sinerjuta Sdn Bhd. Residensi Kepongmas is located at Kepong, Jalan Metro Perdana Barat, Taman Metropolitan, 52100 Kuala Lumpur. Conveniently adjoined to several major highways including the Middle Ring Road 2 and DUKE Highway, bringing it just under 12km away from Kuala Lumpur, also 850m to AEON Big, Kepong, 1km to AEON Shopping Mall, 2.8km to KTM Station and 4.3km to Village Mall.



Figure 4 Project location

Source: <http://asetkayamas.com/wp-content/uploads/2017/09/Residensi-Kepongmas-Brochure.pdf>

Regarding the title of this report, in this study, the types of tile and where it is placed is clearly stated on the Residensi Kepongmas brochure which is handed out by the developer which is Aset Kayamas to potential purchaser.

WALL FINISHES	
Internal Walls:	Skim Coated & Paint
External Walls:	Plaster & Paint
Kitchen:	Ceramic Tiles up to 1500mm Height
All Bathrooms:	Ceramic Tiles to Ceiling Height
FLOOR FINISHES	
Living / Dining	Ceramic Tiles
Master Bedroom / bedroom	Ceramic Tiles
Kitchen	Ceramic Tiles
All Bathrooms	Ceramic Tiles
Balcony	Ceramic Tiles
Yard	Ceramic Tiles

Figure 5 Types of tiles for Residensi Kepongmas

Source: <http://asetkayamas.com/wp-content/uploads/2017/09/Residensi-Kepongmas-Brochure.pdf>

3.2 Types and Uses of Tile Finishes at Residensi Kepongmas

The overall type used throughout the units at Residensi Kepongmas are ceramic tiles. There are two types of ceramic tiles from my understanding which is the most commonly used in residential building is glazed ceramic tiles and unglazed ceramic or quarry tiles. Glazed ceramic tile and unglazed ceramic tile has different characteristics, finish and use as shown in table 3. Both types of ceramic tiles can be seen used in this project

Table 3 Difference between glazed and unglazed ceramic tiles

Criteria	Glazed Ceramic Tile	Unglazed Ceramic Tile
Finishing Touch	A supplementary layer of liquid glass is added to tiles by additional firing in the kiln	No additional firing procedure is required
Thickness	Thickness or density is less	Thicker and denser
Skid Resistance	Less resistance to slip due to top layer glass coating	Highly slip resistance in wet or heavy traffic areas
Scratch Resistance	Scratches are more prominent on the glossy surface	Scratch resistance
Stain Resistance	The non-porous glass coat on the top makes it less prone to staining	More susceptible to staining
Colour	More colour and design options are available	Basic earthy shades with natural-looking tones
Finish	matte, glossy and textured finish	Rough
Use	Indoor	Outdoor

3.2.1 Floor Tiles at Kitchen, Dining, Living and Bedrooms

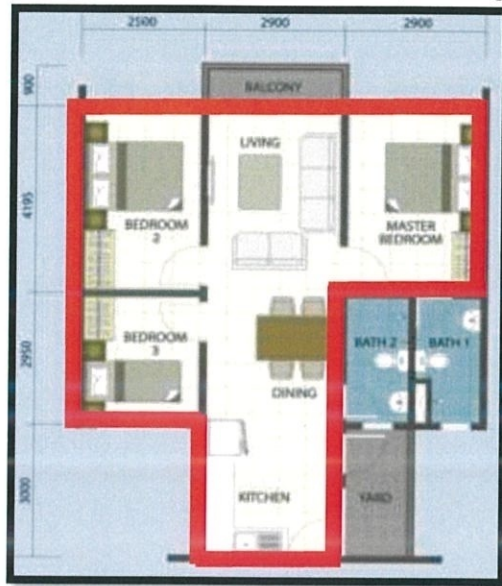


Figure 7 kitchen, living, dining and bedrooms floor plan

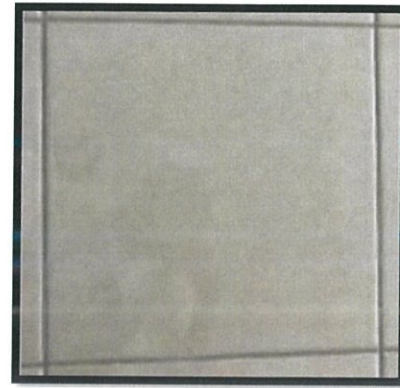


Figure 6 Kitchen, dining, living and bedrooms floor tiles

Source: <http://asetkayamas.com/wp-content/uploads/2017/09/Residensi-Kepongmas-Brochure.pdf>

The type of tiles used in the highlighted area are glazed ceramic tiles with glossy finish and bright colour for the main purpose of reflecting natural light to brighten up the space. With light coloured tiles it can also perceive the eyes and mind to make the space looks and feels bigger. The shading of the tile also adds aesthetic values. Glossy finish is used mostly throughout the unit is because it will give less footprints marks on floor in comparison to matte finish. Therefore, unit can look clean for longer period of time.

3.2.2 Kitchen Wall Tiles



Figure 8 Floor plan for kitchen area wall tiles

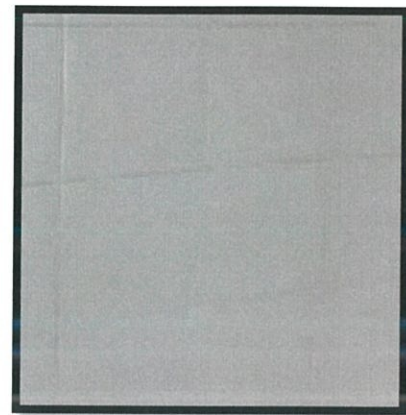


Figure 9 Kitchen wall tiles

Source: <http://asetkayamas.com/wp-content/uploads/2017/09/Residensi-Kepongmas-Brochure.pdf>

The type of tiles used in the highlighted area are glazed ceramic tiles with matte finish and bright colour. This is also for purpose of reflecting light in that area to make the space looks bigger. By using matte white coloured shading it gives the unit a modern and clean look and also adds aesthetic values. The main purpose of wall tile at kitchen area is to act as a backsplash when preparing a meal so that paint on walls are not stained in comparison to tiles that can easily be cleaned. It is also used to separate kitchen area from dining area.

3.2.3 Floor Tiles in Bathrooms



Figure 10 Bath 1 and 2 floor plan

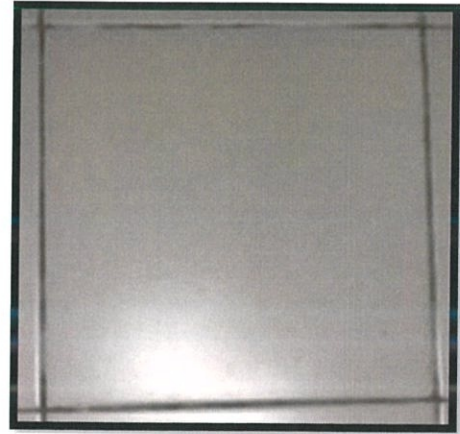


Figure 11 Bath floor tiles

Source: <http://asetkayamas.com/wp-content/uploads/2017/09/Residensi-Kepongmas-Brochure.pdf>

The type of tiles used in the highlighted area are glazed ceramic tiles with matte finish and darker colour. It is necessary to use glazed ceramic tiles in bathrooms because of its characteristics that does not absorb water in comparison to unglazed ceramic tiles. With this humidity in that area can be avoided as it is exposed to high volume of water in an enclosed area.

3.2.4 Wall Tiles in Bathrooms



Figure 13 Bath 1 and 2 floor plan

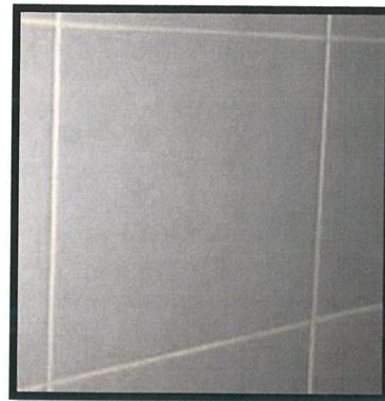


Figure 12 Overall area bath wall tiles

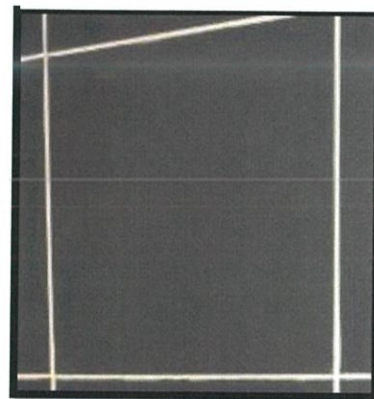


Figure 14 Shower area bath wall tiles

Source: <http://asetkayamas.com/wp-content/uploads/2017/09/Residensi-Kepongmas-Brochure.pdf>

The type of tiles used is same as the floor tiles for bathrooms the only difference is the shading which has two colours. One is a bright colour and the other is a dark colour. The difference in colour is used to separate the toilet area and shower area. The difference in colour adds aesthetic value and a modern look

3.2.5 Floor Tiles at Balcony and Yard



Figure 16 Yard and balcony floor plan

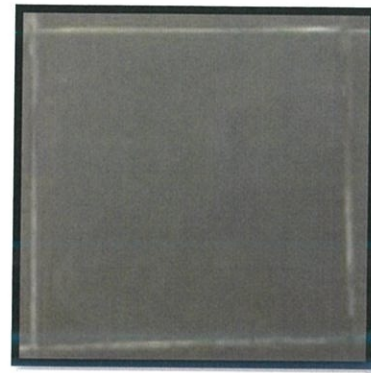


Figure 15 Yard tiles

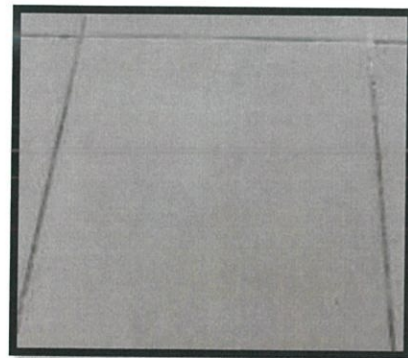


Figure 17 Balcony tiles

Source: <http://asetkayamas.com/wp-content/uploads/2017/09/Residensi-Kepongmas-Brochure.pdf>

Both yard area and balcony area used unglazed ceramic tile which has a rough finish. The only difference is balcony area has a brighter colour than yard area. Unglazed ceramic is used for exterior is because it is denser and more durable than glazed ceramic tile. It also to avoid slipping as it can be exposed to water, different with bathrooms as it is in an enclosed area compare to yard and balcony which open.

3.3 Types and Uses of Tile Finishes at Residensi Kepongmas

1. Apply water proofing membrane on concrete bed



Figure 18 Apply water proofing membrane

This is the most important part before constructing tiles on a high-rise building. Water proofing membrane is evenly coated throughout tiles area, this is to ensure that no excess water can seep through the concrete and affect units below with water leakage from ceiling. After water proofing is applied a water proof test is conducted by filling the area with water for at least 2 days. Improper waterproofing could lead to financial harm to company as all tiles and floor needed to be hacked in that area to re-do the water proofing. It can also harm the unit below it as plaster ceiling that has absorbed plenty of water for a long time can collapse and harm the owner living in the unit

2. Construct floor on concrete bed



Figure 19 Construct floor on concrete bed

After water proofing process is complete, Floor screed made from 1:3 ratio of cement to sharp sand is applied on the concrete ground floor slab to provide a level leveled surface to applying tiles. Improper materials used and applying method can lead to hollow of floor which is a major defect as new floor needed to be constructed again and wait for it to dry which is time consuming. Unleveled floor can also cause defect to tiles such as “lip”.

3. Clean the floor

After floor is completely dried, dust and debris on floor should be cleaned. This is to ensure that the floor is leveled and impurities are removed that could affect tiles after placing.

4. Use snap chalk line method for guidelines

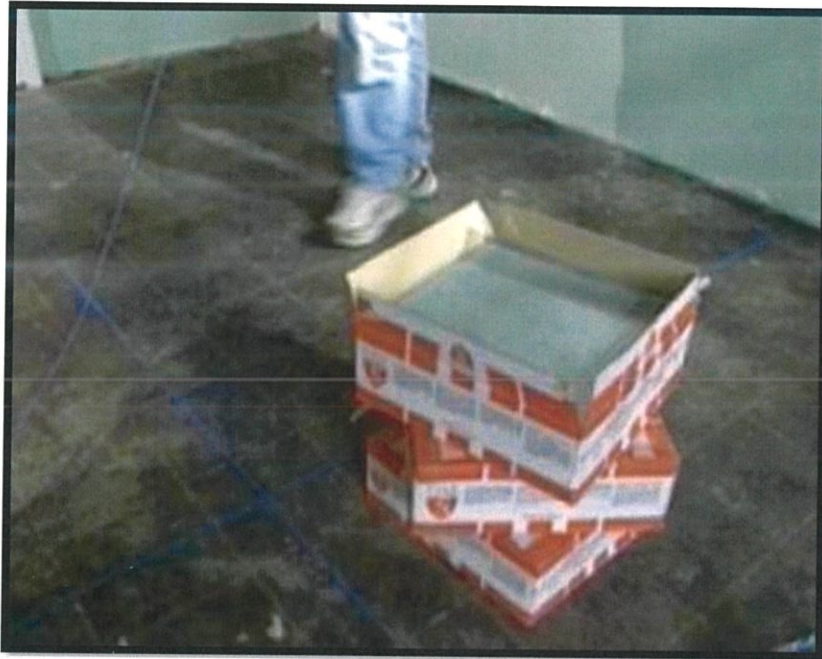


Figure 20 Using snap chalk line method

Snap chalk line method is used as a guideline on where tiles are going to be placed. Measure to find the center of the room, and snap two chalk lines that intersect exactly in the center of the floor. With this total of tiles and odd piece tiles can be identified by observing the guidelines.

5. Mix thin-set mortar



Figure 21 Mixing thin-set mortar

Thin-set mortars are great for installing tile tiles and wall tiles, because they can handle a great deal of weight and are very durable. They can be used in wet areas or high-heat areas. Thin-set mortar are in powdered form and is mixed with water until it reaches a peanut butter like state for easy application.

6. Apply the mortar



Figure 22 Applying mortar on floor and tile

After successfully mixing the thin-set mortar, it is then applied on the base of floor and on the back of floor tiles. Mortar should be used as soon as possible as it can hardened at a fast rate. It should also be mixed in small quantities to avoid waste of mortar. When applying mortar, it should sufficient and cover the whole back of the tiles to avoid hollowness of tile. Insufficient mortar used are the main reason for hollow tiles and needed to be replaced in the near future.

7. Place tiles



Figure 23 Placing tiles

After successfully apply mortar on floor and tiles, tiles are then placed on floor according to the guidelines. Tiles needed to be placed starting from the middle as in the guidelines and move in one direction.

8. Cut odd tiles



Figure 24 Cut odd tiles

When you get to a wall where a standard tile will not fit, mark and make cuts with a standard tile cutter. This type of tile is called a short piece. It is necessary as to fill the whole area with tiles and to avoid unfinished look in houses and units. Odd tiles are normally used at the side of wall, drop and at base of door frame.

9. Place the spacers

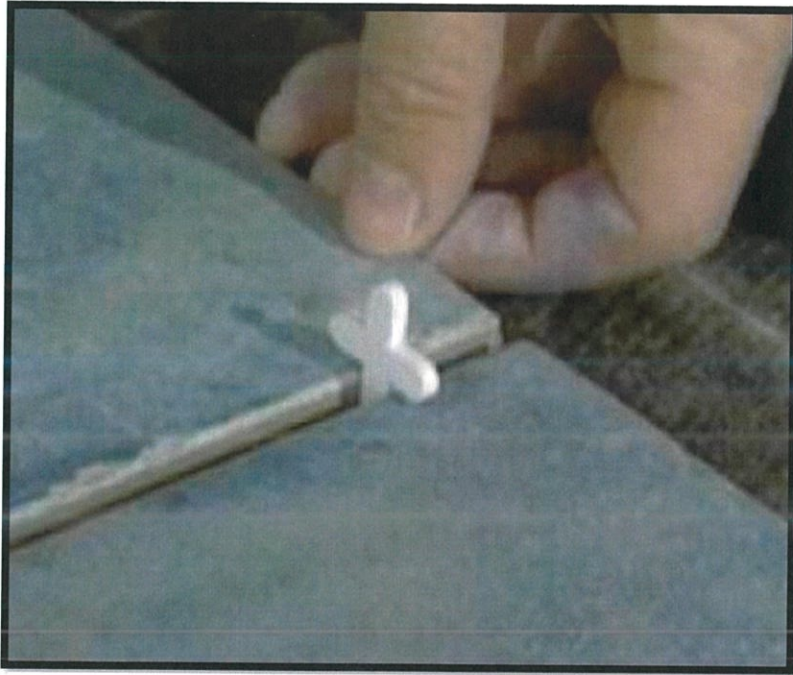


Figure 25 Place spacers

Continue the process, using the chalk line as a guide and placing spacers between each tile to ensure uniform distance between the tiles. When all the tile work is complete, allow the tiles to dry in place for at least a whole day. Spacers create voids in between tiles which is then covered with grout. By using spacers, it creates a uniform and neat look when finish as all the tiles have a uniform distance between each tile.

10. Apply grout



Figure 26 Apply grout on tiles

After tile is completely fixed to the surface, spacers are then pulled out in between tiles to proceed to the next step which is grouting. Grout is spread in between tiles to fill voids that is visible in between tiles to create the finish look. grout is available in a variety of textures and colours. Pick a colour that matches the colour of the tile. The types colour used in this project are cement colour for overall floor tiles, yellowish coloured grout for bathroom walls tiles and white coloured grout for kitchen wall tiles. Use a rubber trowel or float to spread the grout across the tiles at an angle to be certain to get it between each tile.

11. Remove excess grout

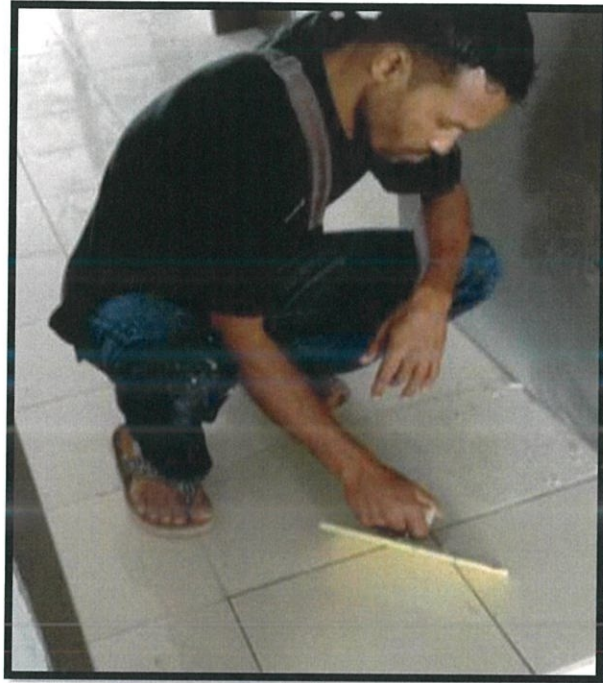


Figure 27 Removing excess grout

When the grout is in place, wipe away all the excess grout with a damp sponge or cloth for easy removal. Repeat this process several times to completely remove the excess grout and being careful not to remove the grout lines around the tiles. After all the excess has been removed, wait for at least 3 hours for grout to harden completely. With this construction of tiles is done and finish look is achieved.

3.4 Types of Defects That Can Occur on Tile Finishes

Construction defect is generally defined as a defect in the design, the workmanship, and in the materials or systems used on a project that results in a failure of a component part of a building or structure and causes damage to person or property, usually resulting in financial harm to the owner.

There are various types of defects that can occur on tile finishes. Below are the types of defects that has occurred while on my practical training at Residensi Kepongmas.

3.4.1 Chipped and Scratched on tiles

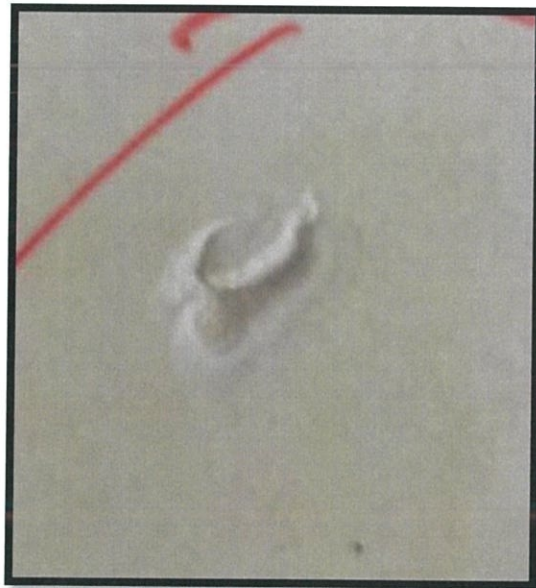


Figure 28 Chipped tiles

Chipped and Scratched on tiles are one the defect that occasionally occurs. This happened solely because of poor workmanship and carelessness of workers while doing their line of work. Carelessness of worker such as accidently dropping pointy objects or hard object from height causing chipped and scratched tiles. This can be avoided if workers are more concerned with their surrounding when handling objects. Chipped and scratched tiles also threaten company's financial status as tiles needed to be replace and this could lead to other unit defects.

3.4.2 Stains on tiles



Figure 29 Stain on tiles

Stain on tiles are also defects that needed to be taken into action immediately as it could affect purchaser's satisfaction on cleanliness after handing over unit. Stains on tiles can arise from many aspects when finishing a unit such as paint stains, cement stains, rust stains, and etc. Stains on tiles can be seen on unit that has been hand over to purchaser are the caused of negligence of workers when cleaning. This can be avoided by double checking unit cleanliness by site supervisor to ensure unit is in good condition before handing over.

3.4.3 Hollow tiles



Figure 30 Hollow tiles

Hollow tiles are one of the major tile defects that needed to be handled with care and supervision. Hollow tiles can happen because of lack of cement applied when installing tiles, wall plaster hollow resulting in tiles to appear hollow and floor is hollow resulting in floor tiles to appear hollow as well. This is the cause of poor workmanship by workers and negligence of supervisor during inspection. Hollow tiles are a major financial problem for a company as more materials are needed to replace the tiles. This is because new wall plaster and floor needed to be replaced in addition to new tiles in that area. This could also add other defect while repairing tiles which is a big problem for the company.

3.4.4 Water Ponding

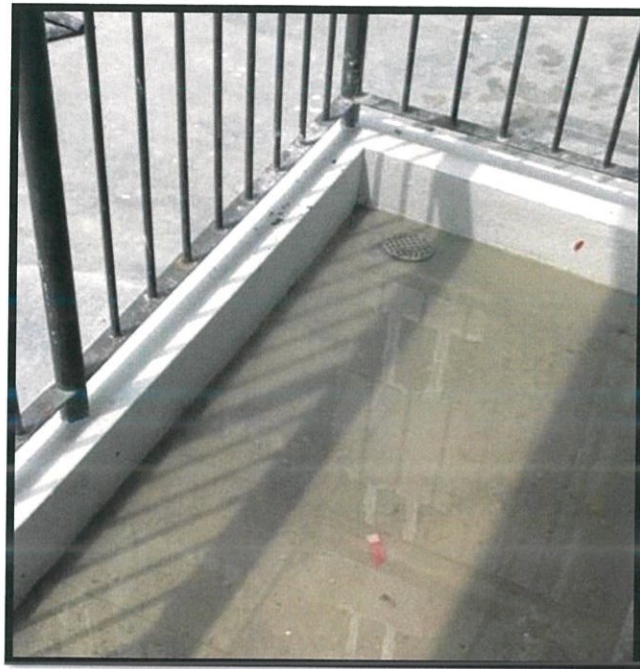


Figure 31 Water ponding

Water ponding is also one of the major tiles defect that occurs in Residensi Kepongmas unit. Water ponding is a common problem occurring in many condominiums and apartments on balcony area and bathroom area. Simply defined, water ponding is areas where large amount of water are exposed such as ponding on balcony area after heavy rainstorm and on bathroom when water tap or shower in open. Water ponding can occur when there is inadequate drainage in that certain area or wrong placement of drainage that causes small areas of water ponding. Water ponding is caused tiles are not properly placed resulting in lack of water runoff towards drains.

3.4.5 Uneven Surface of Tiles

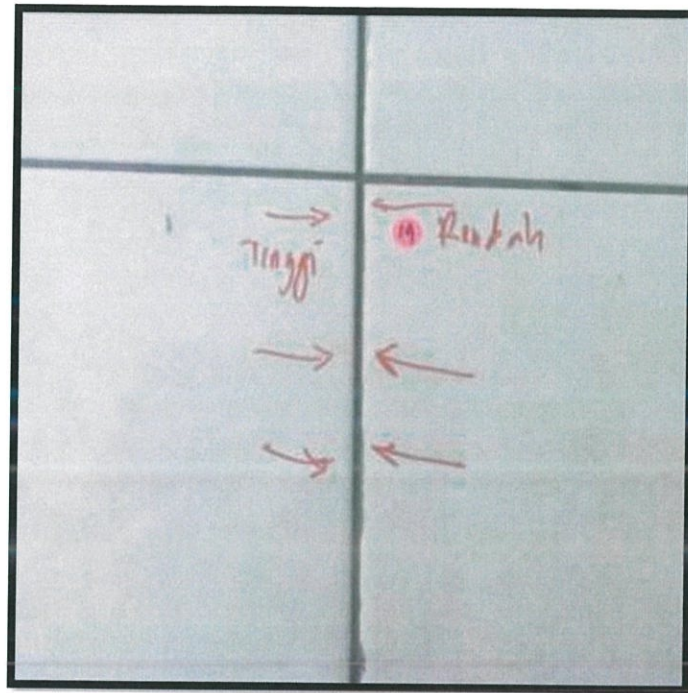


Figure 32 Uneven surface of tiles

An uneven floor or wall surface can lead to several problems in a tile job. Tiles may crack, pop loose or "lip" a condition that occurs when the corners or edges of some tiles stick up higher than those around them. This can harm owners as sharp and pointy edges of tiles are exposed. This is the result of poor workmanship when installing tiles. This can be avoided by using spirit level to identify which part of the surface is uneven prior to installing tiles

CHAPTER 4.0

CONCLUSION

4.1 Conclusion

Overall after involvement in the construction of Residensi Kepongmas, Kepong. Tiles is one of the main components in a residential building due to its features, its relatively cheap cost and aesthetic value for the building identity itself. A proper care for the material and in the process of installation is a must so that it would not cause problem in the future.

From the report, the types of tiles used in Residensi Kepongmas units has been completely explained such as the two types of ceramic tile used which is glazed ceramic and unglazed ceramic tiles, its differences, location of the tiles are placed and purpose of tiles placed in the area. With this, knowledge in designing interior and exterior by using tiles can be improved such as shading and finish of tiles can brighten up a space and increase aesthetic values.

In completing this report, the method of installation of tiles at Residensi Kepongmas is explained in detail. Starting by applying a coat of water proof membrane on concrete slab, construction of cement floor screed on concrete slab, cleaning of floor screed, snap chalk line method for guidelines, type of mix of mortar, application of mortar on floor and tiles, placing of tiles, cutting of odd tiles, application of spacers, grout, removing of excess grout to achieve a finish and complete look.

As a conclusion, various types of defects on tiles can occur when there is negligence on site supervisor and poor workmanship which can cause major problem in the near future. Therefore, it is recommended to all parties to be more alert and professional to minimize other contribution factor in building defect.

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