



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

DEFECT IN CONSTRUCTION SITE

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It is recommended that the report of this practical training provided

By

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entitled

Defect in Construction Site

be accepted in partial fulfillment 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 Kitacon Sdn. Bhd. for duration of 16 weeks starting from 2 September 2021 and ended on 7 January 2022. 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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ABSTRACT

Defect work in construction site is very important to elaborate. Therefore, this report will discuss about types of defects and process of closing defect at Kuala Langat, Selangor, for 207 units of Dalia Residences semi-D and zero-lot bungalows. The goal of this report is to identify the common defects occur for now is only minor defects such as line crack, laminated timber, hollow tile, lippage tile, missing fitting and others. The second goal of this report is to discuss how the process of closing defect made after the repair works is done by workers. In addition, the third and final goal of this report is to describe the machinery and tools that were used.

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CHAPTER 1.0

INTRODUCTION

1.1 Background of Study

House defects is the most important thing to the new house owners. After the home is finished and handed over, the majority of developers will provide a guarantee to correct any faults caused by poor workmanship, such as cracked tiles, uneven or inconsistent paintwork, malfunctioning windows or doors, and so on. The Defect Liability Period is the warranty period in question (DLP). This circumstance is comparable to the warranty we get when we buy an electrical product, and we may extend the warranty time by paying more. If the electrical gadget develops flaws during the warranty term, the cost of repair or even a one-to-one exchange is waived. For houses, however, this is impracticable.

A house's warranty period cannot be extended, and it is not feasible to return or swap the house. If the home inspection is not performed properly, the owner's hard-earned money will be spent on the defective dwelling. In addition, the owners will have to devote extra time and effort to finding a contractor to fix their problems. Owners should properly inspect their homes after taking vacant possession, from the front door to the kitchen, and from the living room to the balcony. From the bedroom to the bathroom, pay attention to every detail. If there are any defects, owners must mark them clearly, and request developer to rectify as soon as possible. Otherwise, owners would have to spend their own money to fix defects if the defect liability period is over. The owners must pay attention to the date of notification letter after receiving from the developer, because the defect liability period (DLP) starts after 14 days from the date of notification.

1.2 Objective of Wall Construction

The objectives are as follows:

- i) To identify the process of closing defect and types of defects
- ii) To identify the tools used for defect rectification works
- iii) To determine the problems and solution occurred during touch up works for defect rectification works

1.3 Scope of Study

The scope of study is to identify the process of closing defect on site that located at Proposal to build and complete 207 units of two storey Semi-D and Bungalow Dalia Residences with contract sum RM143,300,000 at Bandar Tropicana Aman Teluk Panglima Garang, 42500 Selangor Darul Ehsan. Furthermore, there are steps for closing defect machinery and tool are used to defect rectification works. Besides, while handling the process closing defect, there may have a problem that occurred on site, and it require a solution during the construction process.

1.4 Method of Study

Primary and secondary approaches were utilised to gather data for this report in this investigation. Original data or direct evidence, such as interview transcripts, statistical data, and works of art, is provided via the main approach. A main technique might give you immediate access to the research subject. Observation and interviews are the two most common techniques used.

i. Observation method

The direct observation of the defect work process is done through a site visit. This was conducted at Bandar Tropicana Aman Teluk Panglima Garang, 42500 Selangor Darul Ehsan on 207 units of two storey bungalows Dalia Residences. The method was carried out once a week until the defect work is finish. This observation is highly supported by the use of a photo

that taken during the site visit, that may provide a wealth of information and can significantly support the report's objectives.

ii. Interview method

The interview approach is used to gather project information. The interview was conducted with someone who has expertise in the construction sector or with someone who is associated with the project, such as the site supervisors, the contractor, and the project manager. In this case study, the interview is conducted with the project manager, Mr. Ng Eng Wah and my site supervisor which is Encik Ahmad Syahir. The interview is about the process of defect work, process of closing defect and about the problem and solution that occurred during the defect rectification works.

The secondary approach is then generated from a collection of previously investigated and analysed materials or articles. Some examples include journal articles, book reviews, and scholarly publications. Secondary sources describe, analyse, and synthesise primary sources. This method will explain all of the data, as well as the data flow and limitations.

iii. Document Review

The secondary technique, which is the way of closing defect, employed books, standard operating procedure (SOP), project file, progress report, and also a construction design to give a wealth of information on the project title. There are various more sorts of papers that may be utilised in this case study that are available on the internet. Furthermore, the construction drawing and standard operating procedures (SOP) are used as a guide for the closing defect process.

iv. Journals

Journals are one of the reading resources that a journalist provides. The work of journalists provides a plethora of information that may be gleaned by reading the journals. A journal is typically produced as part of both solo and small group efforts.

CHAPTER 2.0

COMPANY BACKGROUND

2.1 Introduction to Kitacon Sdn. Bhd.

Kitacon Sdn. Bhd. was founded on March 19, 1990 and is the principal contractor for the construction of low-medium rise residential schemes, shop lots, factories, landed houses, school and infrastructure projects.

2.2 Company Profile

This company is developing near the Klang Valley since the headquarters and major operations are both in Klang, making it simpler for everyone to collaborate with them. Kitacon Sdn. Bhd. has mostly worked on structural and civil engineering infrastructure projects in Malaysia and is completely owned and managed by Bumiputera certified professional engineers. The firm offers a comprehensive variety of civil and structural engineering consulting services, supported by years of personal expertise.

This company also has several shareholders, including Pembinaan Kitacon Sdn. Bhd., Mr. Tan Ah Kee, Mr. Teow Choo Hing, and Kiharta Resources Sdn. Bhd. Mr. Tan Ah Kee is the Chief Executive Officer (CEO) of this company. This company also categorized in G7 for CIDB license according to tendering capacity. Currently, there are around 118 people on staff. This firm is accredited to MS ISO 901, MS ISO 14001, OHSAS 18001, and MS1722.

2.3 Kitacon Sdn Bhd Organization Chart

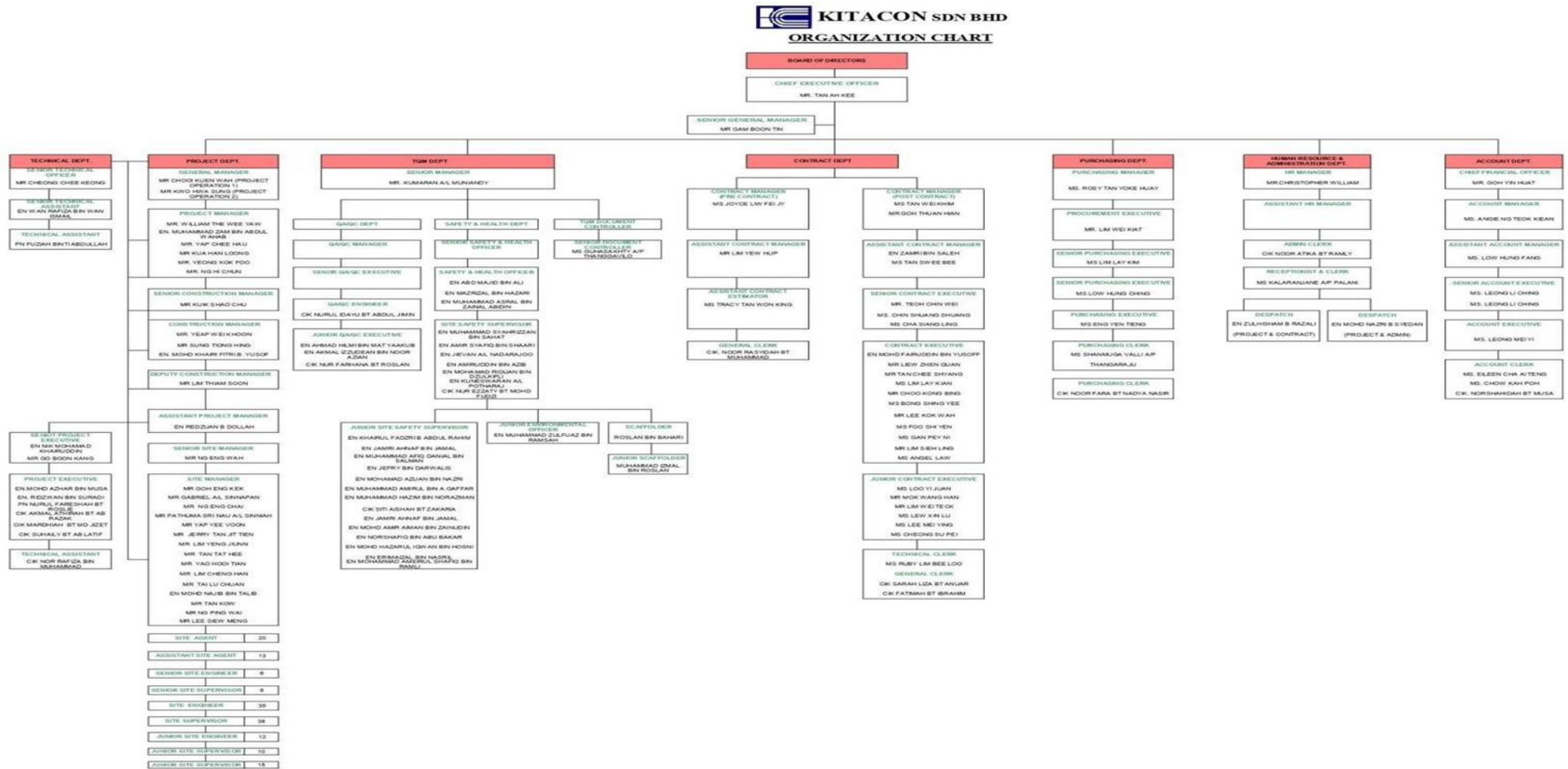


Table 2.1: Organization chart of Kitacon Sdn. Bhd.

2.4 List of Project

Completed Projects

No.	Project Title	Project Value	Start Date	Completion Date	Project Duration	Client
1.	Emerald 299	-	Jul 2019	Jul 2021	24 Months	Guocoland
2.	Bandar Tasik Puteri 115	-	-	-	-	-
3.	Eco Grandeur 55	-	-	-	-	Ecoworld
4.	KLK 191	-	Jul 2018	Jul 2021	36 Months	KLK Land
5.	Welloyd 48	-	-	-	-	-
6.	Eco Ardence 224	RM 150,000,000	Jul 2018	Feb 2019	20 Months	Ecoworld
7.	Worldwide 147	-	-	Sep 2021	-	Worldwide
8.	Sekolah Jenis Kebangsaan Cina SJK(C) Bukit Fraser	RM 6,900,000	1 Sep 2019	27 Nov 2021	12 Months	Tropicana Aman Sdn. Bhd.

Incomplete Projects

No.	Project Title	Project Value	Start Date	Completion Date	Project Duration	Client
1.	Bandar Saujana Perdana 120	RM 28,000,000	Aug 2021	Nov 2022	15 Months	Glomac
2.	Element Residences 231	RM 101,000,000	2 Mar 2020	1 Apr 2022	25 Months	Tropicana Aman Sdn. Bhd.
3.	Freesia Residences 198	RM 133,600,000	1 Jun 2021	31 May 2023	24 Months	Tropicana Aman Sdn. Bhd.
4.	Dalia Residences 207	RM 143,300,000	22 Nov 2017	10 Nov 2020	22 Months	Tropicana Aman Sdn. Bhd.
5.	Triana 144	RM 54,700,000	6 May 2019	5 May 2021	24 Months	Tropicana Aman Sdn. Bhd.

Table 2.2 : List of Projects of Kitacon Sdn. Bhd.

2.4.1 Incomplete Projects

i. Bandar Saujana Perdana 120 units

Proposal to build and complete 120 units of 2 storey bungalow houses that cost RM28,000,000.00 at Bandar Saujana Perdana, Selangor.



Figure 2.1: Two Storey Bungalow House, Bandar Saujana Perdana.



Figure 2.2: Two Storey Bungalow House, Bandar Saujana Perdana.

ii. Triana Tropicana Aman

Proposal to build commercial development 144 units of shop lot with contract sum RM54,700,000.00 on Lot PT 44813, Mukim Tanjung Dua Belas, Kuala Langat district, Selangor Darul Ehsan.



Figure 2.3: Triana shop lot 144 units, Kuala Langat.



Figure 2.4: Triana shop lot 144 units, Kuala Langat.

iii. Freesia Residences Tropicana Aman

Proposal gated community strata housing 198 units of bungalow houses with total contract sum RM133,600,000.00 on Lot PT 45110, Mukim Tanjung Dua Belas, Kuala Langat district, Selangor Darul Ehsan.



Figure 2.5: Project Signboard Freesia Residences, Kuala Langat.



Figure 2.6: Freesia Residences, Kuala Langat.

iv. Element Residences Tropicana Aman

Proposal of housing development 231 units of 2 storey bungalow houses with contract sum priced RM101,300,000.00 on Lot PT 73427 an area of 26.49 acres, Mukim Tanjong Dua Belas, Kuala Langat district, Selangor Darul Ehsan.

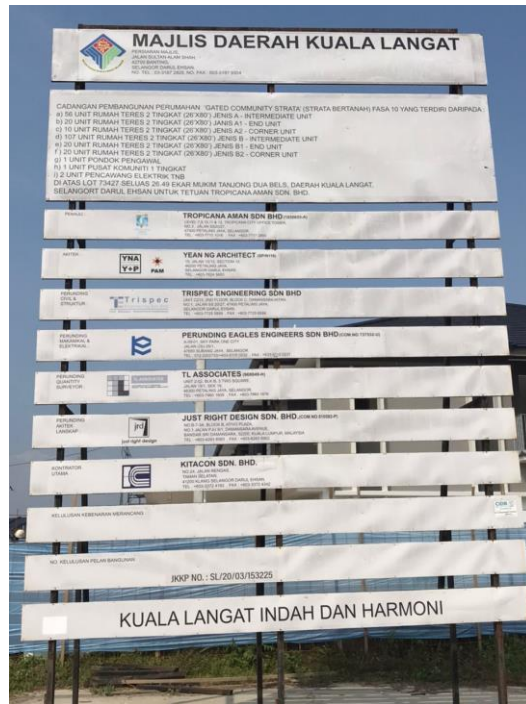


Figure 2.7: Project Signboard Element Residences, Kuala Langat.



Figure 2.8: Element Residences, Kuala Langat.

CHAPTER 3.0

THE METHOD OF DEFECT WORK

3.1 Introduction

This project is already hangover to the client, Tropicana Aman and has received a Certificate Completion and Compliance (CCC). It is now in the defect stage. The defect liability period for either high-rise structures or landed dwellings is 24 months, according to the Housing Development (Control and Licensing) Act 1966, Schedule G and H. An inspection of new home will take approximately 24 month which is Defect Liability Period (DLP) after the property has been constructed. This is to establish if there are any defects that the developer needs to resolve before the warranty period ends.

A defect is a flaw in a structure or a design issue that decreases the value of the structure and creates a dangerous situation. Many causes can cause a building defect, including poor workmanship or the use of inferior materials. Despite recent improvements in construction technology, it appears that building flaws have not been reduced. Some flaws are more widespread because of factors such as pollution, poor workmanship, or the use of poorer materials, as well as climatic conditions. Defective building construction affects not only the ultimate cost of the product, but also the ongoing maintenance costs, which can be significant.

In most cases, real estate lawyers will keep the remaining 5 percent money as a house repair fund. In the eighth month following vacant possession, the developer would collect 2.5 percent of the money, with the remaining 2.5 percent released after the defect liability period. Moreover, renovation is not covered under the warranty. For example, if you renovate your kitchen and the tiles or walls fracture in the future, the developer is under no duty to fix it. However, if you discovered flaws in other rooms of the house, such as the living room, bedroom, or bathroom, and you're still inside the 24-month defect liability period, you can still ask the developer to fix them. Before beginning any renovation work, you may ask the contractor to double-check your home, particularly those problematic areas such as the ceiling or water pipes, to see if there are any signs of water leaking.

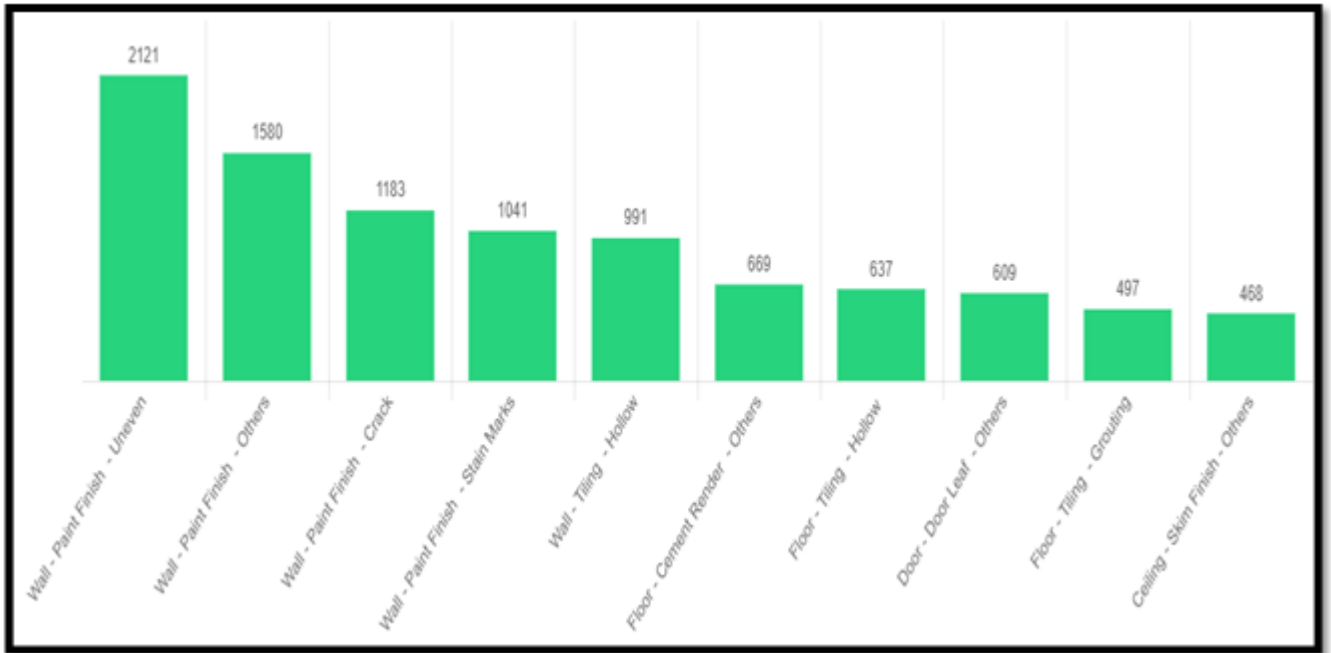


Figure 3.1: Common Defect Occurs in TA207 Obtained from DMS.

3.2 The Process of Closing Defect

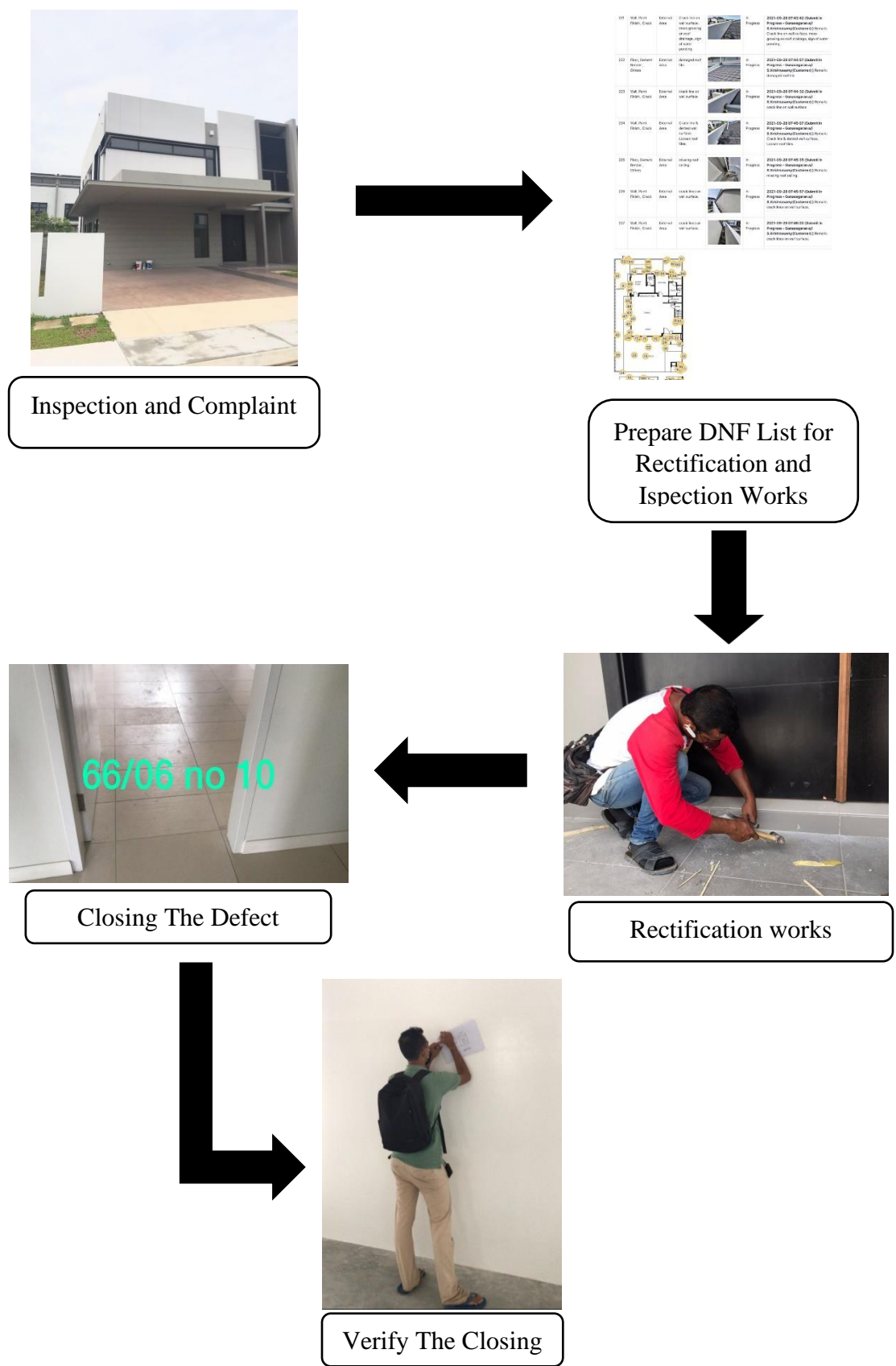


Table 3.1: The Diagram of Closing Defect.

This process of closing defect consists of five phases, starting with inspection and ending this process with verify the closing.

i. Inspection and Complaint

The owner of the unit will do an inspection and complaint about the defects within defect liability period. Record all the defects and take pictures as evidence and mark the position of the defects. Duplicate the checklist, and keep the original copy checklist and submit the duplicated copy checklist to the developer's customer services department.



Figure 3.2: House unit 66.

ii. Prepare DNF List for Rectification and Inspection Works

After the inspection, we will prepare the Defect Notification Form list for the rectification works and inspection works by Clerk of Work (COW) or Vacant Position (VP) team. The developer will distribute a standard house defect checklist to owners for inspection during vacant possession.

221	Wall, Paint Finish, Crack	External Area	Crack line on wall surface, moss growing on roof drainage, sign of water ponding.		In Progress	2021-09-28 07:43:42 (Submit In Progress - Gunasegaran a/j S.Krishnasamy(Customer)) Remark: Crack line on wall surface, moss growing on roof drainage, sign of water ponding.
222	Floor, Cement Render, Others	External Area	damaged roof tile.		In Progress	2021-09-28 07:44:07 (Submit In Progress - Gunasegaran a/j S.Krishnasamy(Customer)) Remark: damaged roof tile.
223	Wall, Paint Finish, Crack	External Area	crack line on wall surface		In Progress	2021-09-28 07:44:32 (Submit In Progress - Gunasegaran a/j S.Krishnasamy(Customer)) Remark: crack line on wall surface
224	Wall, Paint Finish, Crack	External Area	Crack line & dented wall surface. Loosen roof tiles.		In Progress	2021-09-28 07:45:07 (Submit In Progress - Gunasegaran a/j S.Krishnasamy(Customer)) Remark: Crack line & dented wall surface. Loosen roof tiles.
225	Floor, Cement Render, Others	External Area	missing roof ceiling.		In Progress	2021-09-28 07:45:35 (Submit In Progress - Gunasegaran a/j S.Krishnasamy(Customer)) Remark: missing roof ceiling.
226	Wall, Paint Finish, Crack	External Area	crack lines on wall surface.		In Progress	2021-09-28 07:45:57 (Submit In Progress - Gunasegaran a/j S.Krishnasamy(Customer)) Remark: crack lines on wall surface.
227	Wall, Paint Finish, Crack	External Area	crack lines on wall surface.		In Progress	2021-09-28 07:46:20 (Submit In Progress - Gunasegaran a/j S.Krishnasamy(Customer)) Remark: crack lines on wall surface.

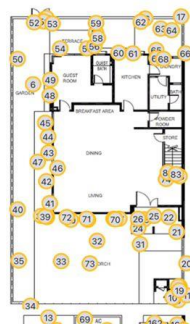


Figure 3.3: DNF List.

iii. Rectification Works

Before repair the defect at the house, we will give a hard copy of defect list to workers or subcontractor to make them easily spot the position of the defects and in order workers will not miss some defects in that house to repair. The worker or subcontractor will do the rectification works. Manage the workers to repair all the flaws as soon as possible.



Figure 3.4: The Tiler Do The Rectification Works.

iv. Closing The Defect

When the rectification works is done, the site supervisor will take a pictures of defect that has been fixed refer to the defect list and do an inspection and closing the defect. After that, the site supervisor need to close the defects in Defect Management System (DMS) produced by developer.



Figure 3.5: Defect Closing Picture.

v. Verify The Closing

Submit the closing defect in DMS list. The Clerk of Work (COW) or Vacant Possession team will receive the closing defect and they will verify the defects either the defect is done or not at site.

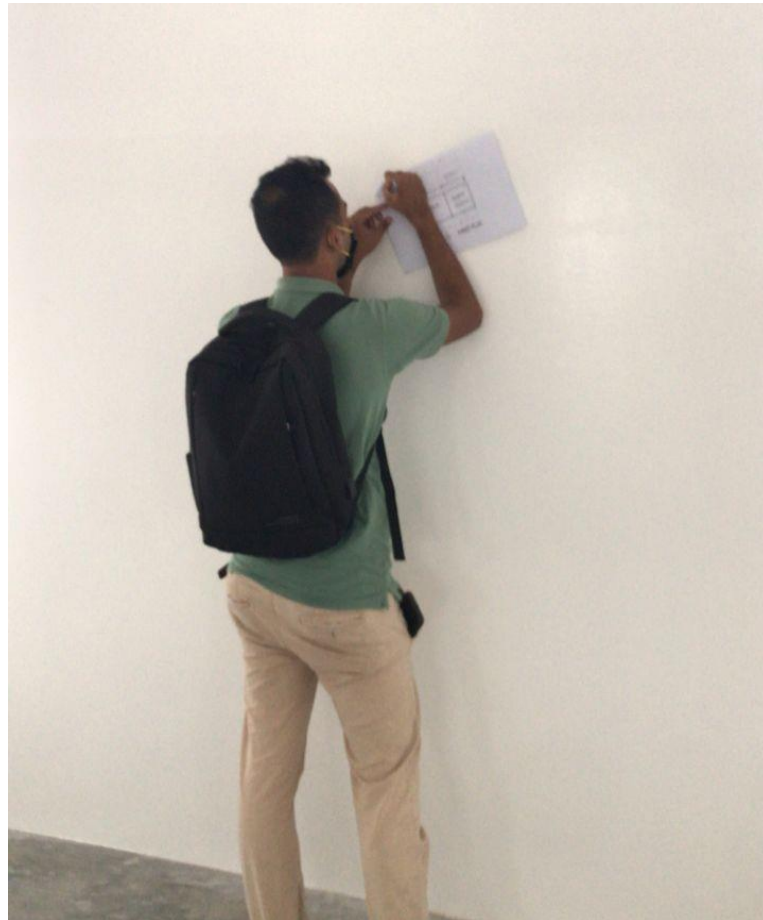


Figure 3.6: Verification Works at Site.

3.3 The Types Of Defects

While doing the inspection and rectification works, there are several tools are needed to repair the defects.

i. Chipping wall

Peeling from plaster might be caused by a lack of thorough wetting of the white coat when the plaster was first put, resulting in surface chalking. Another cause of peeling might be the use of a glue size that absorbs water and keeps it beneath the paint. Extreme temperature swings from day to night (from air conditioning) and vice versa, for example, might cause the wall to get moist and peel. It can be fix with by using plaster skim (JOTAPLAST MAX).



Figure 3.7: Chipping Wall.

ii. Tile Lippage

Tile lippage happened because of Poor craftsmanship, severe warpage or thickness fluctuation in the tile, an uneven substrate surface, a tile fitted in an offset larger than 1/3 for tiles with edges longer than 18", and grout joints that are too small can all contribute to excessive lippage. Lippage occurs when one tile edge is higher or lower than the adjacent tile and when the surface is not levelled. To fix it by reattach and seal the tile back.

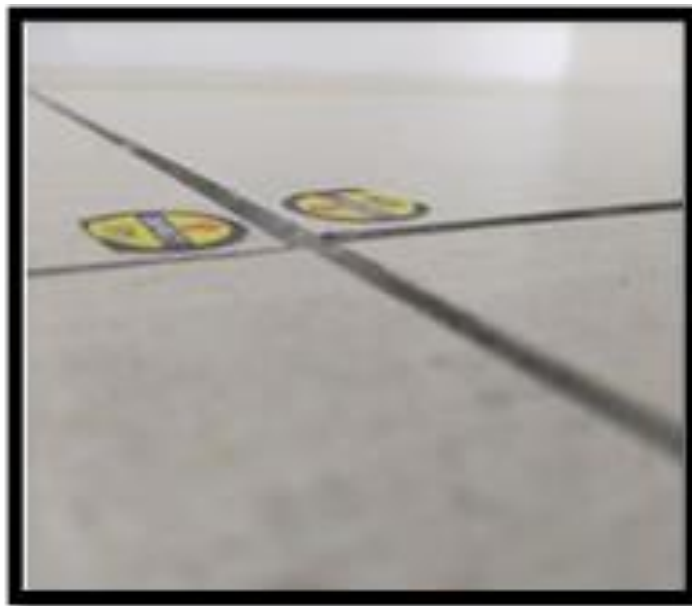


Figure 3.8: Tile Lippage.

iii. Rusty Frame

This defect is common in house building. When iron and oxygen come into touch with water, moisture, or humidity, a metal gate can rust. Many metals used to make automatic gates, such as iron and steel, are prone to rust. Rust can be reddish, orange, or brown in colour. It may seem powdered, flaky, or crusty. It can be repair by using sandpaper and painting it back. If the defect cannot be fix, replace it to new one.



Figure 3.9: Rusty Frame.

iv. Cracked Slab or Imprint

Slab cracking that occurs unexpectedly is a common source of complaints. Drying shrinkage, heat contraction, constraint (external or internal) to shortening, subgrade settlement, and other variables can all contribute to cracking. The overall water content of concrete is the most important element controlling its drying-shrinkage qualities. The quantity of shrinking increases proportionately as the water content rises.

Cracks can also be generated by saturated concrete freezing and thawing, alkali-aggregate reactivity, sulphate assault, or reinforcing steel corrosion. Can used either 2 materials which is Sikadur 215 or liquid repair 1000. If the crack is too deep, use the epoxy injection for the rectification work.



Figure 3.10: Cracked Imprint.

v. Hollow Tile

Hollow tiling is the most common defect area complaint by owner. The reason why it happens is because during the tile installation, poor quality components such as screed, mortar, glue, and/or the tile itself were used. Lack of oversight and poor craftsmanship (the way the tile is set, the mortar & slurry is produced, the glue is utilised, and so on). Furthermore, an uneven flooring or incorrect subfloor cleaning prior to tile installation prevents the formation of a consistent adhesive bonding layer. If the flooring is directly exposed to sunlight and the adhesive/bonding layer is not solid, debonding due to tile expansion is a possibility. Tiles may pop up or buckle as a result of this.



Figure 3.11: Hollow Tile.

3.4 The Tools Used for Defect Rectification Works

In order to inspection and defect rectification works, here is the tools are needed to use at site.

i. Tapping Rod Tile

The Tapping Rod Tile is a tool for inspecting hollow tiles. It may be telescopic to identify the wall more readily. To establish the extent of the hollow wall, lightly tap the wall. Tour guides, chalkboard presentations, and operating instructions may all be done using it. To check for hollow tiles, we used a tapping rod to gently tap the tile; if the tile is struck too hard, it would fracture.



Figure 3.12: Tapping Rod Tile.

(Source: <https://www.hardwareonline.com.sg/all-brands/o-r/rainbow/tile-tester-s-s-3-4-x-36-with-spring.html>)

ii. Spirit Level

A level, sometimes known as a spirit level, bubble level, or just a level, is an instrument for determining whether a surface is horizontal (level) or vertical (vertical) (plumb). To verify that the wall is exactly straight, a spirit level is employed.



Figure 3.13: Spirit Level.

iii. Wheelbarrow

A wheelbarrow is a single-wheeled hand-propelled vehicle with two rear handles that is pushed and handled by one person. The load's weight is shared between the wheel and the operator, making it simpler to handle heavier and bulkier loads than if the operator handled the whole load. It mainly entails transporting huge or fine materials such as clay brick, aggregates, cement bags, and so on. It makes it easier for the worker to move the weight from one location to another.



Figure 3.14: Wheelbarrow.

iv. Brick Trowel

During the bricklaying process, bricklayers use a brick trowel to distribute or smooth out materials such as concrete or plaster. A flat, steel blade with a pointed end, as well as a wooden handle linked to the blade by a vertical metal arm, are typical elements of the instrument. The brick trowel is most commonly used to distribute materials, but it may also be used to pack materials in between bricks and, in some situations, to shatter bricks into tiny pieces, though other tools are more effective in this regard.



Figure 3.15: Brick Trowel.

v. Finishing Trowel

The finishing trowel is a tool for smoothing out cement or plaster. The tool features a curved handle that is coupled to a very flat blade. This blade is usually rectangular in shape, with sharp edges and pointed corners. It is used by firmly pressing the blade on the smoothing surface and then moving the trowel in a straight line.

A finishing trowel's blade is usually made of aluminium or steel. This tool's handle can be made of plastic or metal, and it's usually held together by a metal bar with rivets or screws. Even when a worker is working with very thick material, this helps keep the handle securely connected.



Figure 3.16: Finishing Trowel.

3.5 Problems Occurred and Solutions Taken to Solve The Problems

There will be a few issues that develop during defect rectification operations, and it will be necessary to come up with a rapid solution to fix the problem on the spot. The problem is described in the next paragraphs.

1. The Tile is Lippage and Hollow

Due to the activity of the employees, this problem commonly arises during construction. First of all, this problem is caused by poor workmanship or poor installation. It because when the surface in not levelled and tile lippage happened. Besides that, the grout joints is too narrow. Narrow grout joints may look pleasing to the eyes, but it increases the chance of tile lippage. At the same time, the certain areas of the tile is hollow because of the tile is not bonded properly with mortar on the tile surface. This problem is found when the site supervisor inspects the the tile after the tile installed, this problem is discovered. The site supervisor using the spirit level to identify the tolerance given for hollowness and lippage. If the tolerance is not too much, the tile hollowness and lippage is accepted.

Repair work was required after the site supervisor noticed the wall was in bad condition. The way to repair the lippage and hollow tile is cut around the tile section carefully so that the tile can be reused. After that, remove all old plaster thoroughly before applying new plaster using this materials which is cement and Weberset CTF Grey as ceramic tile adhesive. Use a rubber mallet hammer to compact and level the plaster all over the space. These process are important so that tile is in good after installation and to avoid the same mistakes.



Figure 3.17: Checking the Tolerance with Spirit Level.



Figure 3.18: Tile Installation.



Figure 3.19: The Finished Work.

2. Apron Slab Crack

This problem arises when the owner went to his new house due to inspection, he found the apron slab of his house has hairline cracked slab. He asked the site supervisor to fix the slab as soon as possible. The supervisor inspects the cracked slab and asked the workers to repair it. The slab need to epoxy for the rectification works. This problem occurs there is a possibility of heavy objects that fall on the slab such as bricks, hammer and so on and cause the floor to crack.



Figure 3.20: Progress of Rectification Works.



Figure 3.21: The Finished Work.

CHAPTER 4.0

CONCLUSION

4.1 Conclusion

The conclusion of this report is about the defect work in construction site on 207 unit of two storey bungalows Dalia Residences at Bandar Tropicana Aman Teluk Panglima Garang, 42500 Selangor Darul Ehsan. The goal of this study is to identify the process of closing defect as well as the challenges encountered, and solutions implemented during rectification works. According to this report, the method of defect closing begins with inspection and complaint by owner within defect liability period, then preparing defect notification form list for inspection works. The next step the worker or subcontractor will do the rectification works refer to DNF list. Last but not least, vacant possession team will verify the defects. Furthermore, this report based on the site building showed the problem that happened and provided a way to remedy the problem on the site building. The problem is that the tile is hollow and lippage, therefore the remedy is to cut, clean the old plaster and laying the new plaster to fix it. The next issue is that the apron slab at yard area has hairline crack. Thus, the solution is to epoxy injection the slab for the defect rectification works. This report also discussed about the tools are used in this defect rectification works. The tools that used are brick trowel, tapping rod tile, spirit level, finishing trowel and wheelbarrow. The process of defect work may be viewed more clearly through the defect rectification works on the site building.

REFERENCES

- Pinsent Masons. (2011). Defective Work in Construction Projects. [Online]. Available:*
<https://www.pinsentmasons.com/out-law/guides/defective-work-in-construction-projects>. Retrieve on 26 December 2021.
- IPM. (2018). House Defects, What to Do. [Online]. Available:*
<https://ipm.my/house-defects-what-to-do/>. Retrieve on 27 December 2021.
- Dan Cavallari. (n.d.). What is Brick Trowel? [Online]. Available:*
<https://www.homequestionsanswered.com/what-is-a-brick-trowel.htm>. Retrieve on 3 January 2022.
- Misty Amber Brighton. (n.d.). What is Finishing Trowel? [Online]. Available:*
<https://www.homequestionsanswered.com/what-is-a-finishing-trowel.htm>. Retrieve on 3 January 2022.
- Home Inspektor. (2021). Causes and Effects of Hollow Tiles. [Online]. Available:*
<https://www.homeinspektor.com/causes-and-effects-of-hollow-tiles/>. Retrieve on 26 December 2021.