DEPARTMENT OF BUILDING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

INVESTIGATION OF DEFECTS DURING LIABILITY PERIOD

Prepared by:

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2017206314

DEPARTMENT OF BUILDING

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

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(PERAK)

DECEMBER 2019

It is recommended that the report of this practical training provided

By

Azfar Danial Isyraf Bin Anuaridhuan

2017206314

entitled

Investigation Of Defects During Liability Period

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

Report Supervisor	:	_____ En. 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 stated herein, prepared during a practical training session that I underwent at Exxomas Sdn Bhd for 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 : 25th June 2020

ACKNOWLEDGEMENT

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

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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 Encik Noor Azam bin Yahaya, Supervising Lecturer, En Muhammad Naim bin Mahyuddin, Practical Training Coordinator and Dr. Dzulkarnaen bin Ismal, 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.

Thank you so much.

ABSTRACT

Defect rectification are important in order to maintain the building durability and stay in good condition to avoid from defects keep happening. Ignoring the defects rectification may cause more costs for the remedial works in the future. The main purpose of defects of defects rectifications are to avoid from the building to become unsafe, unsanitary or otherwise unlivable, and imperfection in a structural or non – structural component. Data were collected through observations, data reviews and interviews. The flows of defect rectification from submission by purchasers to management until how the purchasers accept the rectification work back were observed. Documents such as drawings and method statements are also being reviewed and the causes and solutions of the defects occurred are also being studied. To sum up, defects rectifications are important to keep the building durability maintained, safe to live and stay in good condition.

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CHAPTER 1.0 INTRODUCTION

1.1 Background and scope of study

The construction industry all around the world is getting modern, advance and growing day by day. Most of construction industry is dealing with one major problem, building defects. Structural Engineers are always striving to overcome challenge of defects in buildings but it is difficult to deal with it completely Defect is one of the common problem in any building. A defect is a building design mistake that reduces the value of the building, and causes a dangerous condition. A construction defect can arise due to many factors, such as poor method of contruct or the use of materials. Building defects do not appear to have been minimized despite recent advancements in building technology. Some common defects caused by agents such as atmospheric pollution ,building movement, poor method of construct or the use of materials and climatic conditions are more frequent. Defective building construction not only contributes to the final cost of the product but also to the cost of maintenance, which can be substantial. Defective construction includes activities such as compaction not done to specifications leading to ground subsidence and eventual early deterioration of foundations. This may lead to the complete failure of a structure. Conditions under which building construction takes place are often far from ideal with the focus mainly being on speedy delivery. Defects resulting of inaccurate construction can be avoided by ensuring that proper inspection mechanisms are in place. The understanding of building defects and their causes is essential for better performance of any building. Broadly speaking, building defects fall into two categories viz. defects that affect the performance of structure and defects that affect the appearance of structure.

1.2 Objectives

These are the three main objectives that are focused:

1. To investigate the procedure of defects rectification during liability period
2. To determine the type of defects in new buildings
3. To determine the causes of defects and the solution of each defect occurred.

1.3 Method of study

i. Observation

Observations on how the purchasers submit defect rectification report to Property Management Office, how the Property Management Office accepted the report until how the purchasers accept the rectification work back are being observed. The types of defects located in the building, causes of how the defects occur and the solution to fix and rectify the defects are also being observed.

ii. Document Reviews

Documents reviews can be stated as some documents such as architectural drawings, manual & as-built drawings, operation maintenance, and method statements of some services and facilities such as electrical. The information obtained from both documents are being used to learn about the building services and operations.

iii. Interview

Interview method is used to obtain data. The interview methods used during the practical training is unstructured-interviews where the Supervisors, Engineers, Admins, jeneral workers and others are being questioned directly without prepared any questions beforehand

CHAPTER 2.0 COMPANY BACKGROUND

2.1 Introduction of Company

Figure 1: Platinum victory logo *(Source: PV Official Website)*

Backed with decades of experience in the property development industry, Platinum Victory is set to continue *creating magical moments* for its clientele.

Popular with its high-rise projects in the city especially in Setapak with the acronym *PV*, it is recognised as one of the most sought-after developers in Kuala Lumpur for its practical and reasonable developments, be it residential or commercial.

Delivering over 10,000 homes and shops with comfortable sizes and practical layouts through the years, Platinum Victory has carved its name as a reputable developer of quality.

Holding true to sustainable improvements and innovation towards excellence, its business model has charted many defining moments for Platinum Victory.

Buoyant with the success of its Platinum Hill projects, Platinum Victory began to chart out its masterplan for its next big tract of land in Danau Kota near the lake and Platinum Lake City was conceived.

The first was Platinum Walk, a commercial 4-storey retail development which completed in 2008 and quickly followed by PV10 condominium. PV12 was completed in 2010 and then came PV13, together with PV128, a sprawling 4-storey commercial building delivered in 2011. PV15 and PV16 followed consecutively in 2012 and 2013 while PV20 in 2014.

Gaining the trust and acknowledgment from its buyers in Melati Utama for its Platinum Hill projects, Platinum Victory continues its momentum with PV7 commercial shop lots in 2008 and PV8 condominium in 2010, followed by PV2 in 2013.

These developments have carved many exhilarating moments for Platinum Victory which brings it to the next stage of growth.

Platinum Victory foray into property development began in the late 90's when the ecturbulence and sentiments were not favourable towards new developments or business.

However, perseverance and confidence in believing that its project holds much value and the need for home ownership is a necessity, Platinum Victory launched Pelangi Condominium, a 288-unit high-rise residence in Sentul which was very well-received in 2002.

Soon after, it began acquiring land in Setapak and the master plan for Platinum Hill developed into fruition in 2005, concentrating in Melati Utama with the roll out of PV1 shop lots and condominiums PV3 and PV5. PV6 condominium completed in 2007.

These projects delivering close to 3,000 homes and shop lots demarcated Platinum Victory as one of the pioneer developers in the area.Its fledging moments makes it a journey well begun for Platinum Victory.

Continuing to push for excellence, Platinum Victory embarked on a distinct project within the Kuala Lumpur Golden Triangle at Jalan Sultan Ismail called The Face Platinum Suites, Platinum Victory's first luxury residential and commercial development. Phase 1 completed in 2015 to a sold-out success and Phase 2 will be underway in 2018.

Combined with the delivery of PV21 at Platinum Lake City in 2016, Platinum Victory has charted its reputation as a property developer to be reckoned.

Going into hospitality for The Face Platinum Suites was a natural progression for Platinum Victory since the company has been managing Villa Putra Putri, Gerbang Ampang Hilir at the well-known Embassy Row for over a decade as well as many of its developments.

Its passage of active and rapid developments with no compromises has made waves within the industry which is best described as its happening moments while remaining a community developer at heart.

Having said that, it has developed a new brand called VISTA – Essential Homes by Platinum Victory for all its affordable housing projects. Its first called VISTA Semarak at Jalan Semarak, Setapak, KL was a sell-out and its neighbouring VISTA Langkawi along Jalan Langkawi has the largest built-up size at 926 sq feet amongst all the affordable housing scheme in Kuala Lumpur.

The same happening story continued with its VISTA Wirajaya and VISTA Wirajaya 2 early 2018.Platinum Victory will continue its journey of happening moments with more exciting offerings in the future especially in Setapak, Old Klang Road and Bukit OUG, KL.

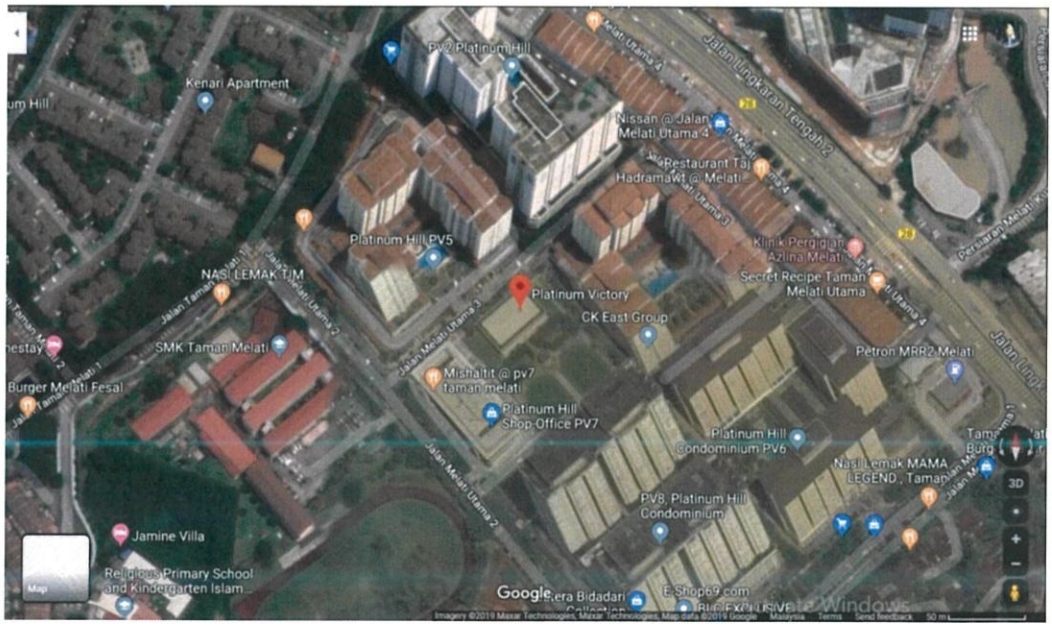


Figure 2 : Location of Platinum victory branch in melati utama (source : Google maps)

2.2 Company profile

1	Company name	Platinum victory Sdn. Bhd
2	Company branch address	Lot 25067, Taman Melati Utama, Melati Utama, 53100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.
3	Year of establishment	1997
4	Scope of work	Real estate
5	Mission	• To strive for continuous improvement, innovation and creativity in all we do. • Committed to excellence beyond physical delivery. • Subscribe to the highest standards of professionalism and ethics.
6	Vision	We want to be the premier developer that creates magical moments for our clients, economically and socially, today and tomorrow.
7	Awards	PropertyGuru Asia Property Awards Malaysia 2019 Highly Commended – Best Mass Market Condo or Apartment Development (Klang Valley) -2019 – Platinum Splendor Residensi Semarak -2019 – Residensi Platinum Teratai iProperty.com.my IProperty Development Excellence Awards (IDEA) 2019 -Best Developer – People's Choice Award

Table 1 : Company profile

2.3 Charts of directors

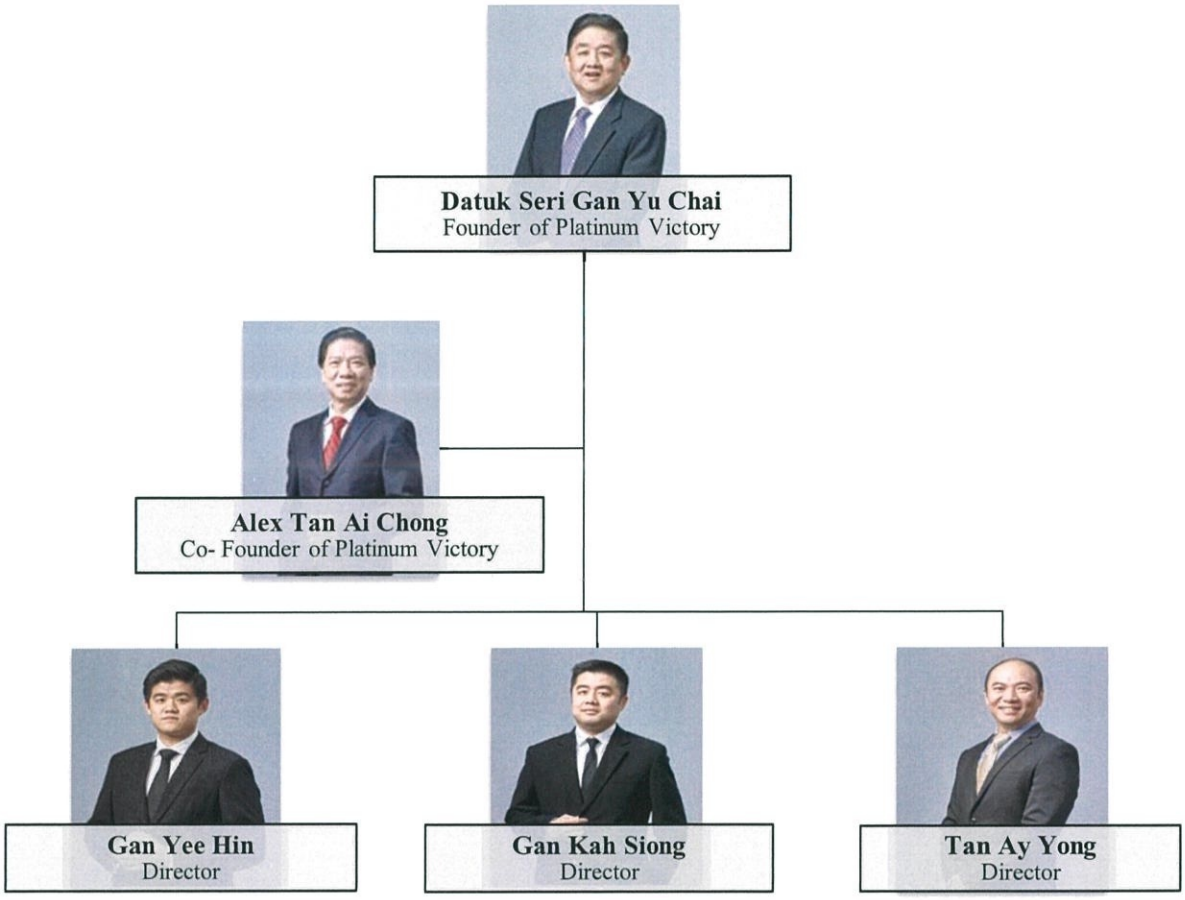


Figure 3: Boards of directors

2.4 Site organization chart

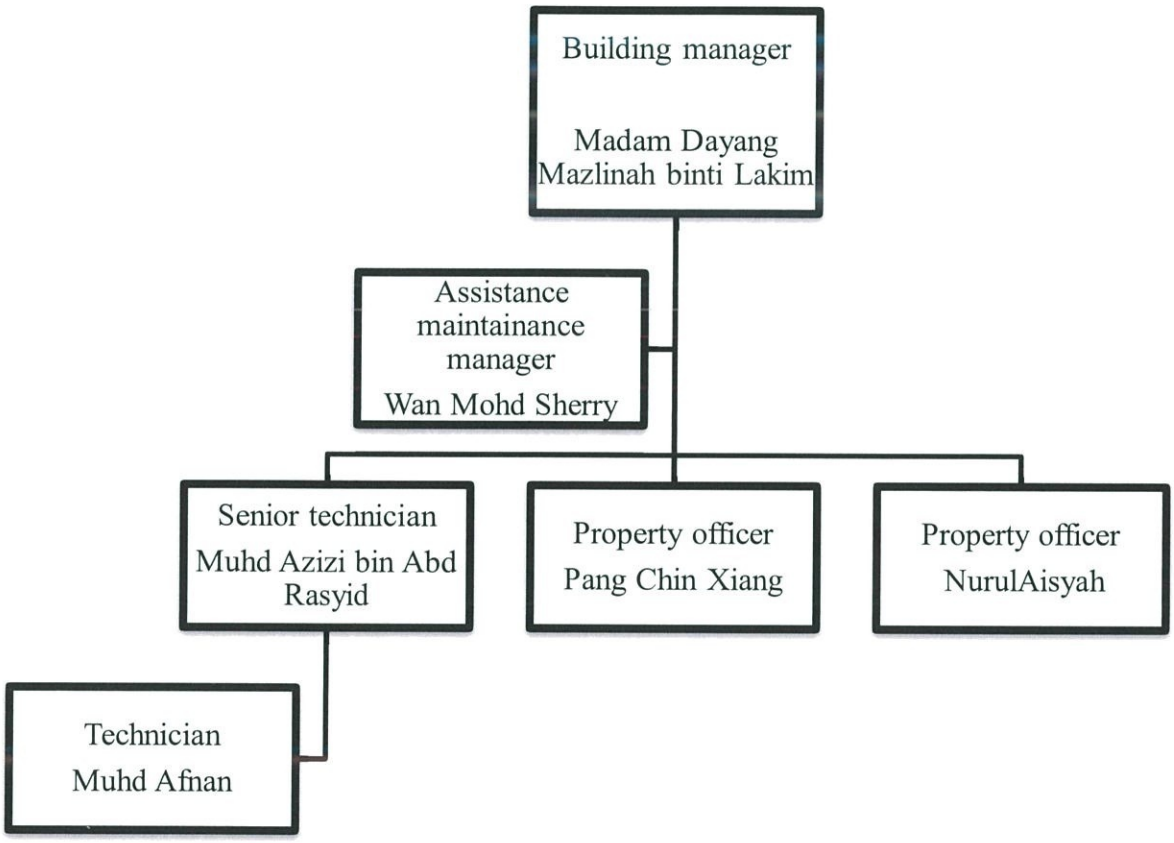


Figure 4 : Organization Chart of Property Management Office Platinum Teratai

2.5 Company Contact

Platinum Victory Sdn. Bhd. Headquarters		
Address	:	62C, Jalan SS 21/62, Damansara Utama, 47400, Petaling Jaya, Selangor.
Office	:	
Working Hour	:	9.00 AM – 6.00PM
Working Day	:	Monday to Friday (Weekdays)
Subsidiaries	:	Pvg Property Management Sdn. Bhd.
Email	:	career@platinumvictory.com
Website	:	https://platinumvictory.com/
Inquires	:	https://platinumvictory.com/contact/

Table 2 : Company contacts

2.6 List of projects

2.6.1 Completed Projects

NO.	NAME OF PROJECT	DATE COMPLETED	COST
1	PV2, Platinum Hills, Melati Utama		RM 364m
2	PV 16, Platinum Lake City, Setapak		RM670m
3	PV 20, Platinum lake city, Setapak		RM372m
4	Sensesasi Residence, Sentul		RM 26.33m
5	PV 21, Platinum Lake City, Setapak		RM 308m
6	Platinum Teratai Residence, Platinum Lake City		RM 305m

Table 3 : List of completed projects

2.6.2 Project in Progress

No.	Name of project	Date completed	Cost
1	Platinum Arena	2022	RM291.2m
2	PV 9 Residence	2022	RM232.1m
3	Platinum Mira	2022	Rm 260.8m
4	Berlian Setapak Residence	2022	Rm 300.0m

Table 4 : List of project in progress

CHAPTER 3.0 CASE STUDY

3.1 Introduction of case study

This project is located at Jalan Langkawi, Kampung Kuantan , 53300 Wilayah Persekutuan Kuala Lumpur. The project was to construct one block of 30 floor apartment that consist 23 floor with total of 800 units. The other 7 floor is the podium for parking lot and a lower ground parking level. There is also one main switch station, one unit of guard house, a garbage house, and a facilities at lot 22526, 22527, 22528 (old lot 224) lot 225, lot 6781 and lot PT9900, off Jalan Langkawi , Mukim Setapak , Wilayah Persekutuan Kuala Lumpur for owner of WENG WAH DEVELOMPENT SDN BHD. The project cost approximately RM 3.05 Million and the area of this project is about 4.08 acre or 16512.27 m2. The main-contractor for this project is BINASTRA CONSTRUCTION SDN BHD. This project started construct on September 2016 and gain its Certificate of Completion and Compliance (CCC) at 11th of September 2019 .The building was built near many Platinum Victory's condominium such as Teratai Residence, PV 16, PV 12, PV 10 and more. The CCC was gained at 11th September, therefore the building is having the next procedure right after CCC which is Vacant Possesion (VP), a process where management office give all the keys to every purchaser. Moreoever, after CCC, the Defect Liability Period (DLP) and Certificate of Making Good Practice (CMGD) that takes about 24 months for defect rectification process and now in progress until 22nd September 2021.

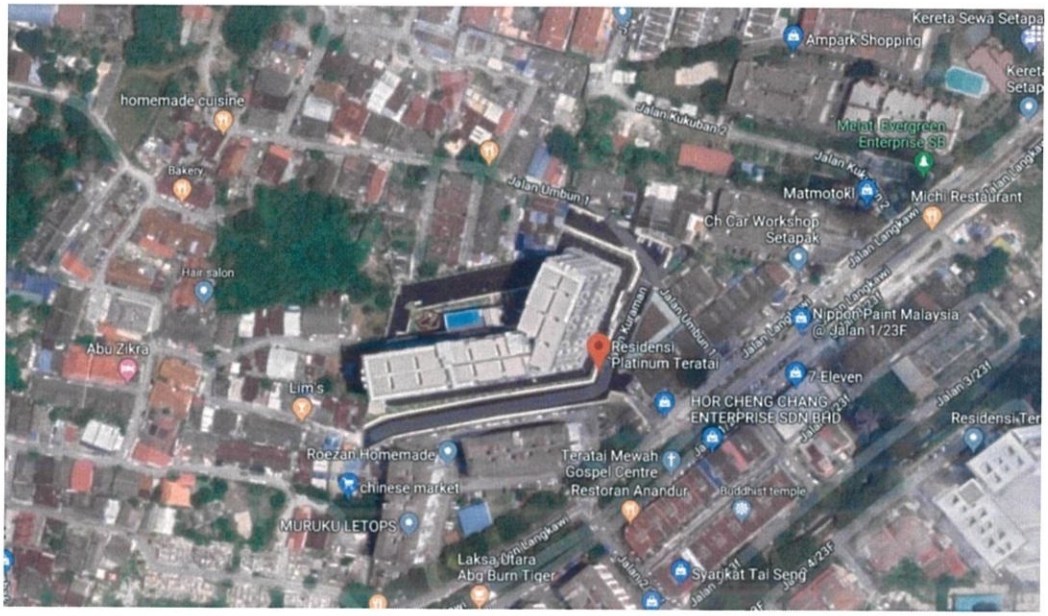


Figure 5 : Location of Residensi Platinum Teratai (source : Google Maps)

Figure 6 : Picture of building

3.2 Defects rectification works during liability period

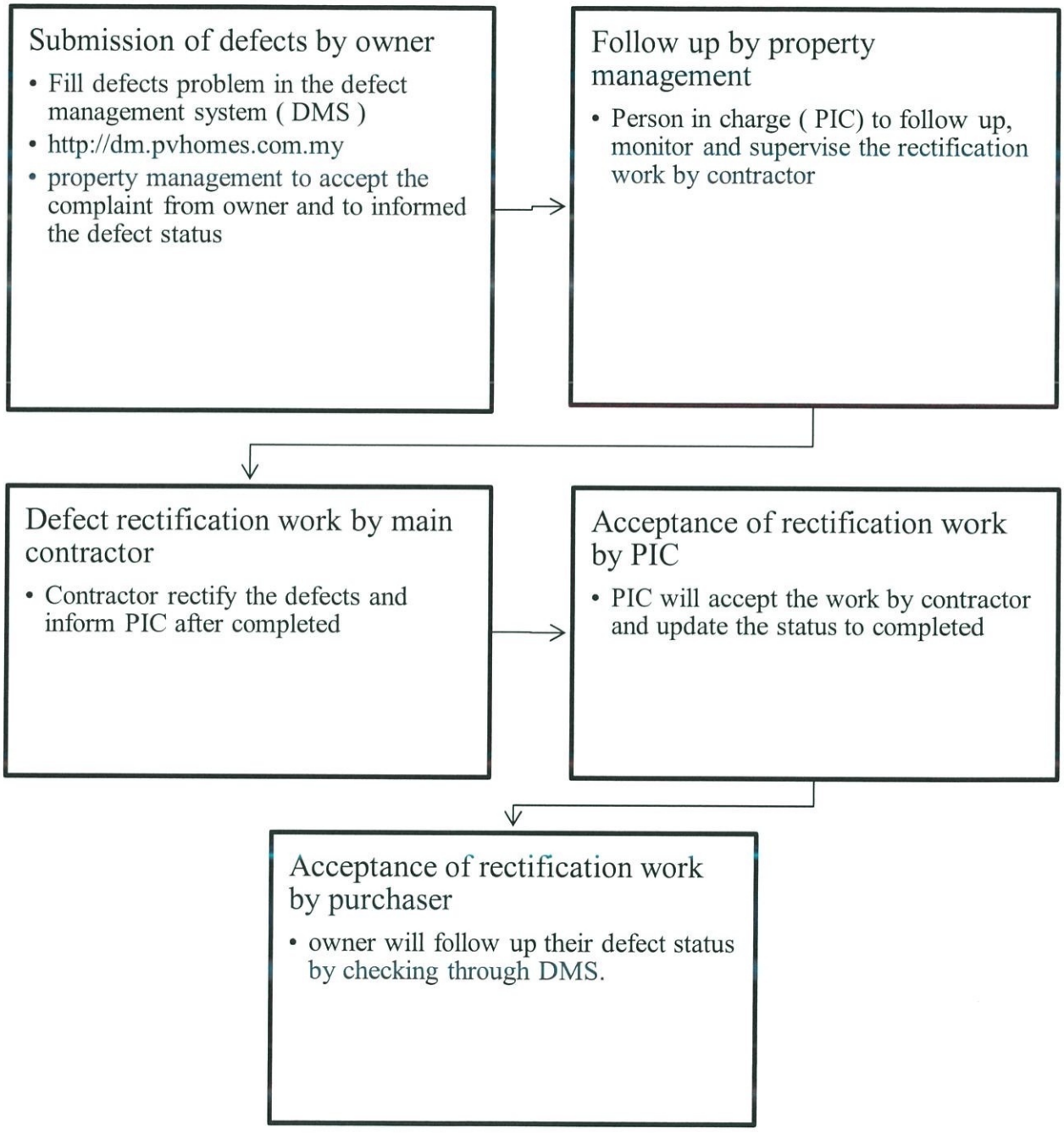


Figure 7 : Flow chart for DLP

Submission of defects by owner through DMS

1) Registration

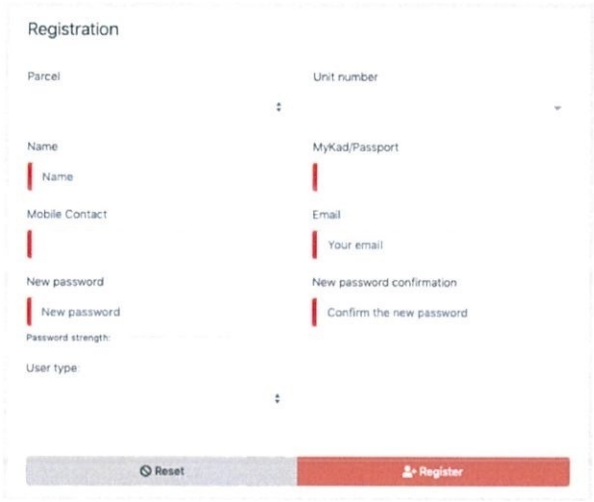
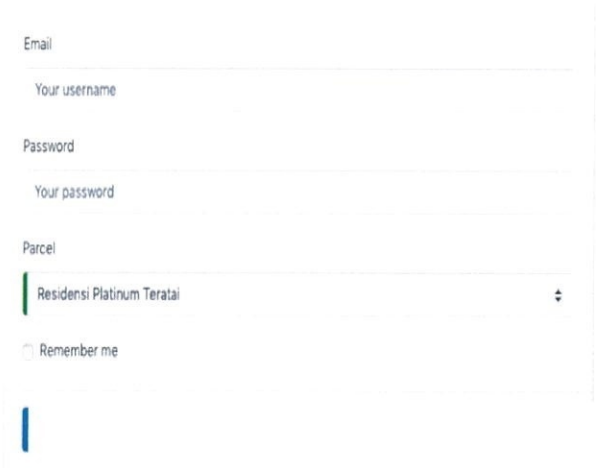


Figure 8 : Registration page

Fill in all the requirement information such as Unit Number, Full name (as per NRIC/Passport), 12 digits NRIC numbers and etc.

a) Owner : Name stated in the Sale & Purchase is eligible to register.
b) Tenant who has submitted Tenancy Agreement & Occupancy form to management office is eligible to register
c) Authorized person (acts on behalf of owner to submit defects) who has submitted authorisation letter to management office is eligible to register

2) Login



3) Defect Submission

Figure 9 : Login Page

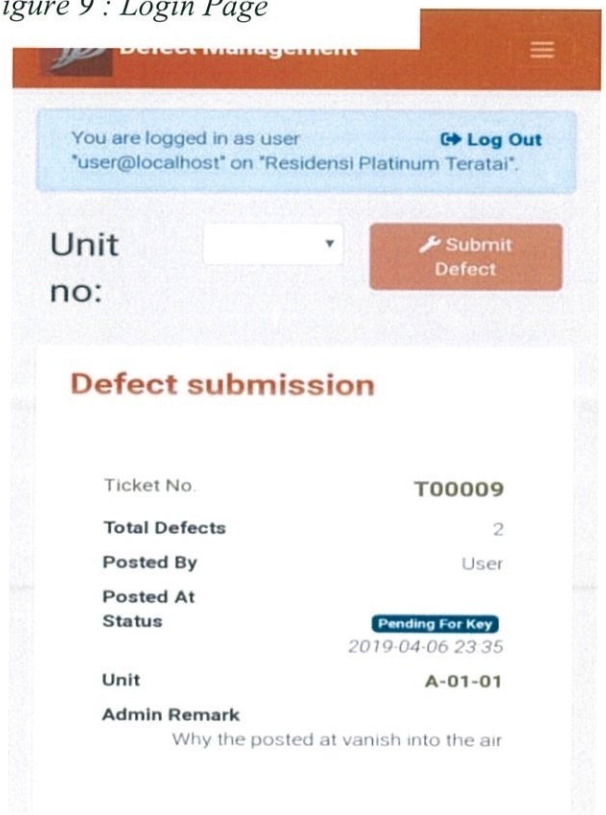


Figure 10 : Submission page

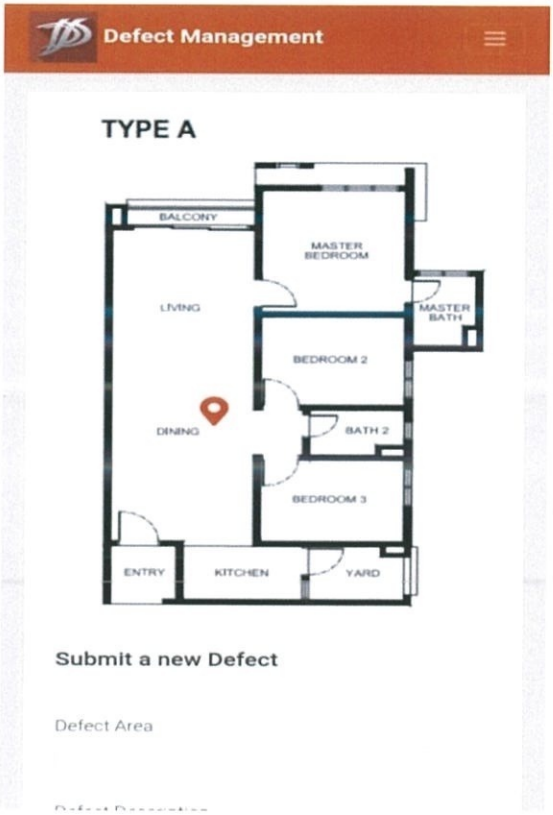


Figure 11 : Submission page

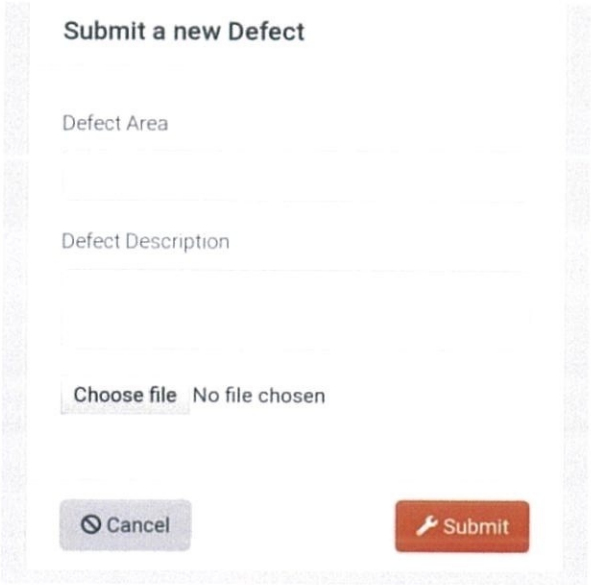


Figure 12 : Submission page

User clicks on the ' Submit Defect ' button in Home Page and submit defect by the following:

a) Place the pin on the affected area
b) Input your defect area (i.e living/dining/ master bedroom etc)
c) Describe your defect
d) Attach the image of your defect (Maximum : 2 images)
e) Click on ' submit '

4) Ticket and status

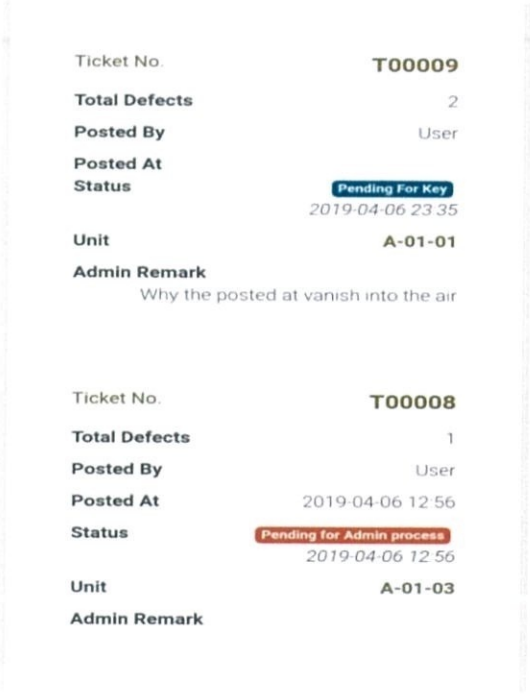


Figure 13 : Status page

After the defects submissions, a ticket number will be assigned to the user for the total defect items submitted on the same day. The ticket will show the total number of defect item, date of submission and the status of the defect

5) Follow up by property management

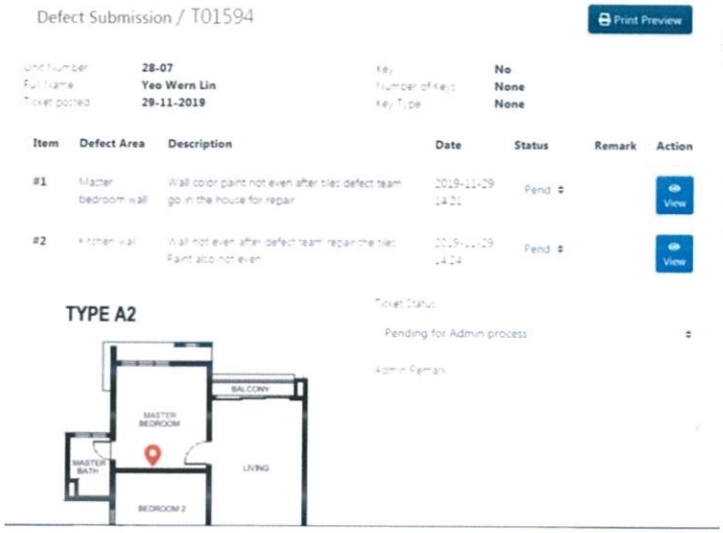


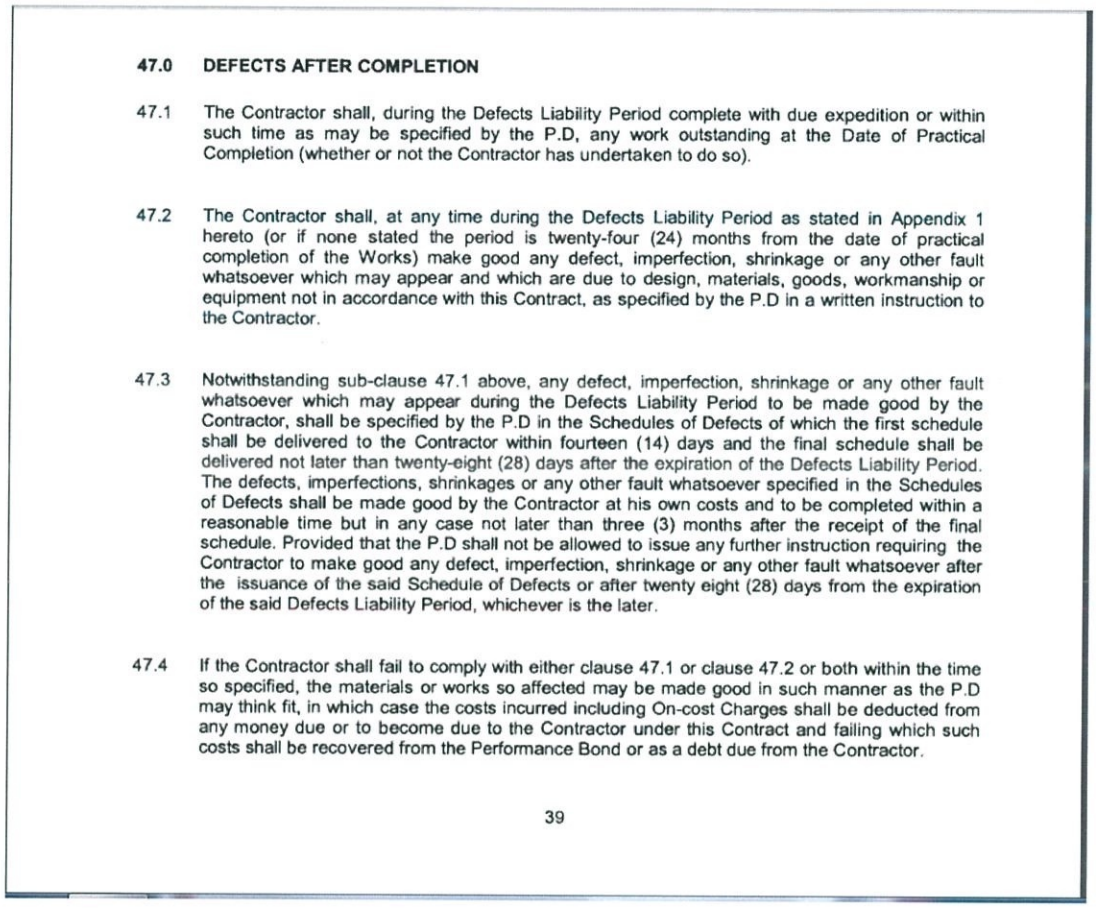
Figure 14 : Status page in MO Site

The main contractor will do defect inspection referred to purchasers defect submission report on the web application.

- Main contractor will give instruction of defect rectification work to the sub-contractors and the defects must be rectified within 30 days (ILBS, 2013)(Strata Act 757 Part IV, Chapter 2, no. 9). If the defects could not being rectify during the period, the developer must pay for the fine. (ILBS, 2013)(Strata Act Part VII, Deposit to Rectify Defect, no 92. (3))

The defect submissions are then followed up by person in charge (PIC) from Property Management Department and will be documented as black-and-white. The documents will be passed to Main Contractor. The key submitted by owners to MO also will be passed to Main Contractor based on the defect submissions list. Main contractor are then give instruction to all their sub-contractors for defects inspections. After the inspections done, Main Contractor will give instruction of defect rectification work to the sub-contractors. The sub-contractors are given 30 days for defect rectification.

6) Defect rectification by main contractor



47.0 DEFECTS AFTER COMPLETION

47.1 The Contractor shall, during the Defects Liability Period complete with due expedition or within such time as may be specified by the P.D, any work outstanding at the Date of Practical Completion (whether or not the Contractor has undertaken to do so).

47.2 The Contractor shall, at any time during the Defects Liability Period as stated in Appendix 1 hereto (or if none stated the period is twenty-four (24) months from the date of practical completion of the Works) make good any defect, imperfection, shrinkage or any other fault whatsoever which may appear and which are due to design, materials, goods, workmanship or equipment not in accordance with this Contract, as specified by the P.D in a written instruction to the Contractor.

47.3 Notwithstanding sub-clause 47.1 above, any defect, imperfection, shrinkage or any other fault whatsoever which may appear during the Defects Liability Period to be made good by the Contractor, shall be specified by the P.D in the Schedules of Defects of which the first schedule shall be delivered to the Contractor within fourteen (14) days and the final schedule shall be delivered not later than twenty-eight (28) days after the expiration of the Defects Liability Period. The defects, imperfections, shrinkages or any other fault whatsoever specified in the Schedules of Defects shall be made good by the Contractor at his own costs and to be completed within a reasonable time but in any case not later than three (3) months after the receipt of the final schedule. Provided that the P.D shall not be allowed to issue any further instruction requiring the Contractor to make good any defect, imperfection, shrinkage or any other fault whatsoever after the issuance of the said Schedule of Defects or after twenty eight (28) days from the expiration of the said Defects Liability Period, whichever is the later.

47.4 If the Contractor shall fail to comply with either clause 47.1 or clause 47.2 or both within the time so specified, the materials or works so affected may be made good in such manner as the P.D may think fit, in which case the costs incurred including On-cost Charges shall be deducted from any money due or to become due to the Contractor under this Contract and failing which such costs shall be recovered from the Performance Bond or as a debt due from the Contractor.

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Figure 15 : Jkr pwd form db (rev 2007)

Based on the law stated by JKR above, at number 47.0 tittled 'Defects after completion', contractor must complete all the rectification works within 21 days

5) Acceptance of rectification work by PIC

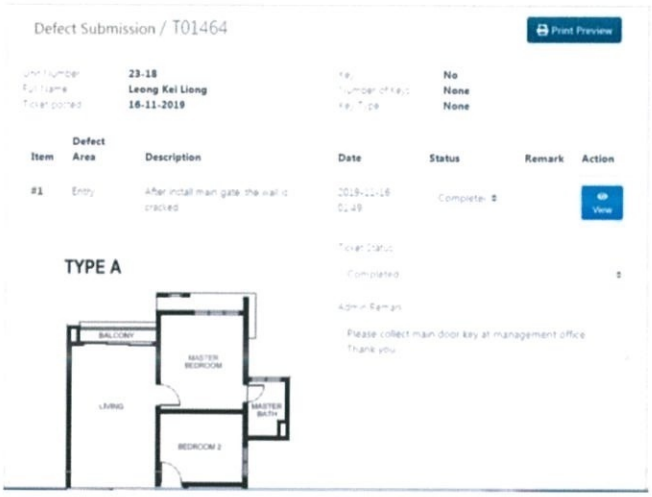


Figure 16: Status Page in MO site

PIC confirmed the acceptance of the work. If the defect is not reaching the satisfaction level, the rectification work need to re-do and process no. 2 will be repeated. If the defect rectification reached the satisfaction level, next process will be proceed.

Once the rectification work is done, Main Contractor will update to the PIC or Property Management Office. The status of defect will be updated on the web application as "Completed". If the defect is not reaching the satisfaction level, the rectification work need to re-do and process no. 2 will be repeated. After the second attend of the extension rectification work is done, Main Contractor will update again to the PIC or Property Management Office for acceptance of work. Third and above extension of rectification work will require acceptance from Architect.

3.2.2 Before Vacant possession (VP)

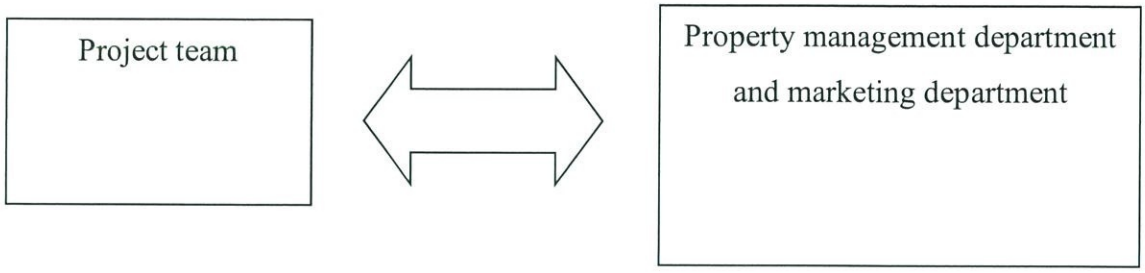


Figure 17: flow of defect rectification before VP

PROCESS

: a) To carry out the pre – inspection with Marketing before taking possession from Project Department.

b) Defects must be rectified before taking possession from Project Department

3.2.3 After Vacant Possesion (VP)

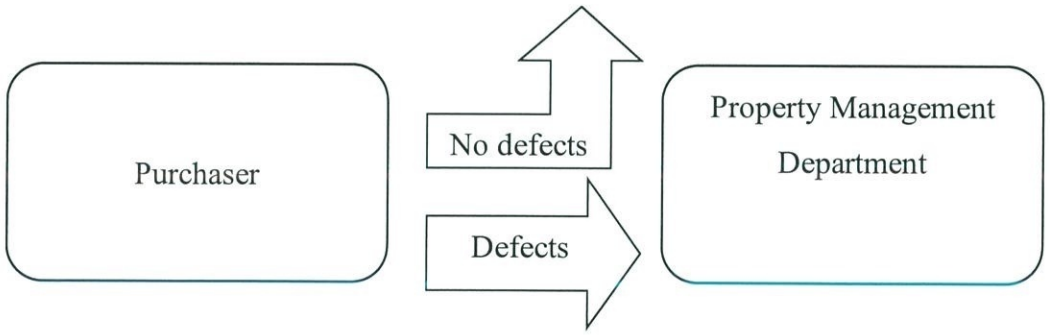
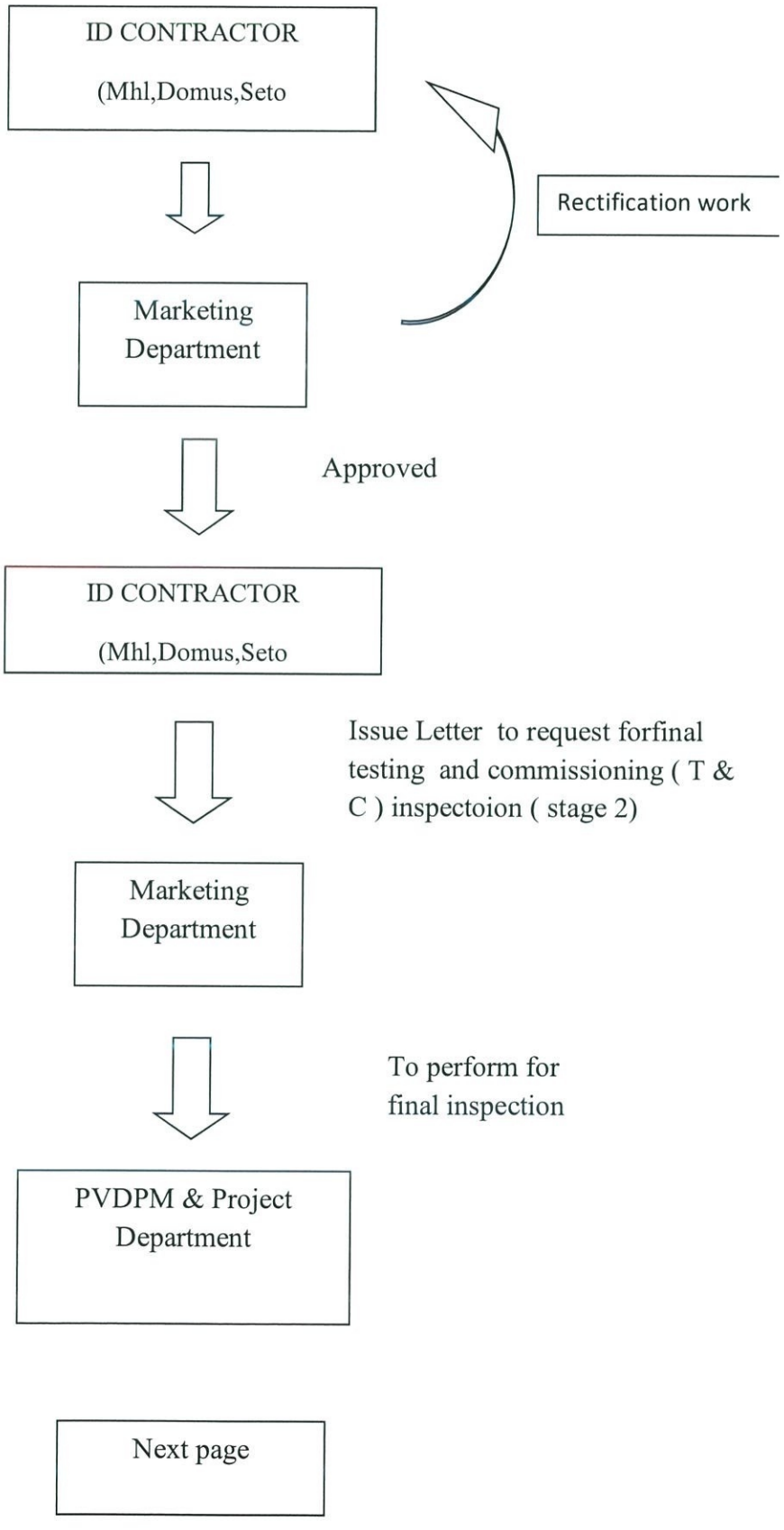


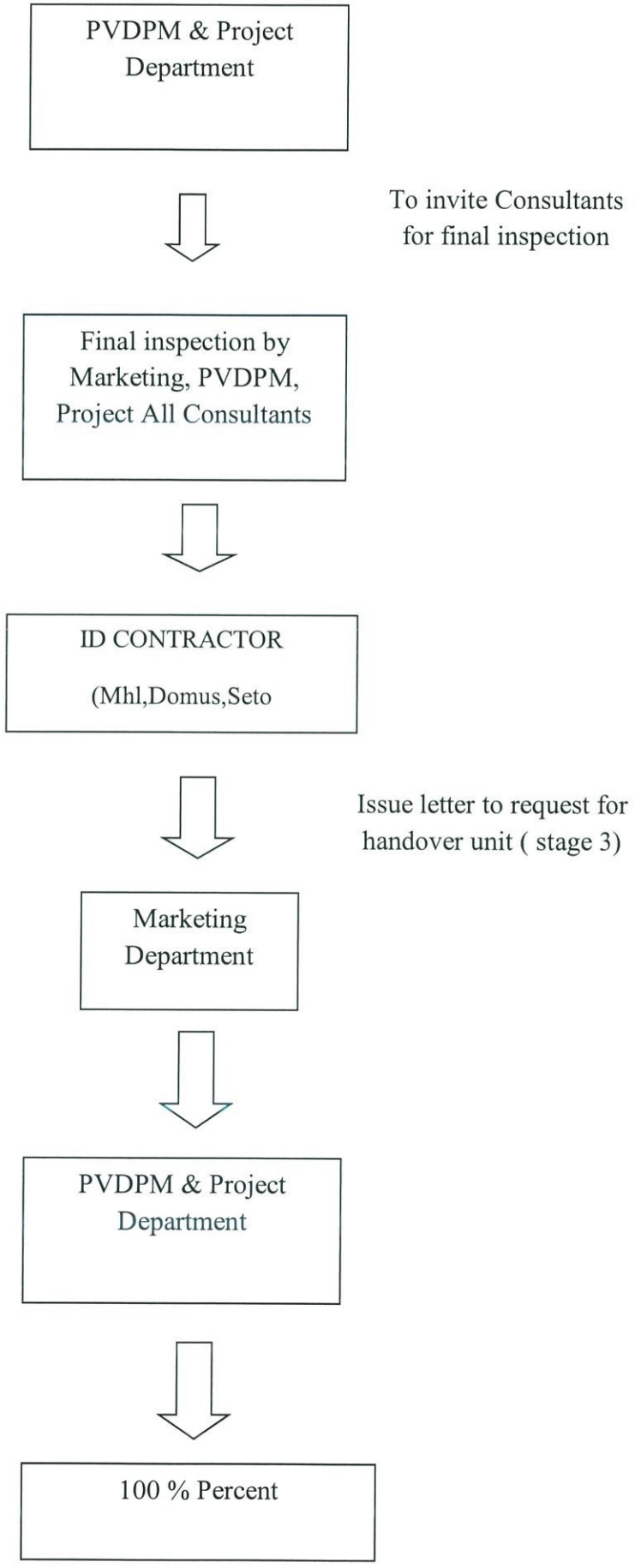
Figure 18 : Flow chart of defect rectification after VP

PROCESS:

a) Handing over and joint inspection with purchaser.
b) Purchasers acknowledge all relevant documents and taking over keys.
c) Upon completion of rectification if any, the pre-inspection is carried out before 2nd appointment with purchasers.

3.2.4 Platinum Teratai ID work Inspection, testing and commissioning flow chart.




PVDPM & Project Department
To invite Consultants for final inspection
Final inspection by Marketing, PVDPM, Project All Consultants
ID CONTRACTOR
(Mhl,Domus,Seto
Issue letter to request for handover unit (stage 3)
Marketing Department
PVDPM & Project Department
100 % Percent

Testing & Commisioning (stage 2)

PVDM to send the invitation to PVDPM for T&C (3 days In advance) with the following attachment:

a) Letter from ID

-Tittle : Request for T&C for typical unit

b) T&C checklist

c) Megger test result

Handover of keys from ID to PVDPM (Stgae 3)

a) Letter from ID

-Tittle : Request to surrender key for typical unit

b) Handover key checklist

c) Joint inspection Defect Layout

3.3 Determination of defects occur in the building

Defects can be defined as lack of something necessary for completeness, shortcoming or imperfection, fault, blemish (source : webster's dictionary) . Building defects can occurred if there was mistake in architect drawing, poor or improper quality of item used to construct, or improper method statement by contractor. There are two type of defects first are structural defects such as crack at foundation, rusty steel in the reinforcement concrete that can cause collapses. Second type of defect are non- structural defects such as leakage, poor painting, crack on wall and more.

No.	Type of defects	Descriptions
1	peeling paint  *Figure 19 : peeling wall*	The paint at the walls are peeled because of the climate in Malaysia with heavy rain and very high in temperature.
2	Dampness  *Figure 20 : Dampness at bottom of the wall*	The wall are full with watermark or we know as 'dampness'. This is because Malaysia are now in a heavy rain climate.

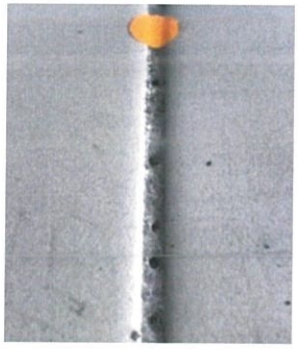
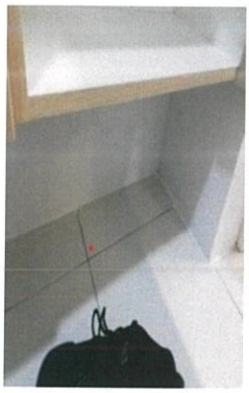
3	Hairline crack	 *Figure 21 : Hairline crack outside the unit*	Hairline crack are becaue of the movement inside and outside the building. This hairline crack will take place because of vibration.
4	Hollow tile	 *Figure 23 : Holes*  *Figure 22 : Hollow tiles*	The mortar between the tiles and inside the floor tiles are shrinking or can be called as thining because of poor finishes in constructing.
5	Wrong floor slope	 *Figure 24 : Stagnent in toilet*  *Figure 25 : floor slope (source : Google)*	The water inside the toilet are not flowing to the drain. Besides it gather at the corner of the toilet. This may happen because of the wrong floor sloping method.

Table 5 : Type of defects

3.4 To determine the causes of defects and the solution of each defect occurred.

No.	Factor	Solution
1	Peeling paint Peeling , cracking, or blistering paint happen when there is a loss of sticking between the paint and the surface it's placed on. This loss of sticking can be caused by a number of factors such as dirty surface, water, high temperature and intense sunlight and more.	Main contractor will peel off the peeled paint using a scraper. Then they will clean the painted surface and then repaint.
2	Dampness When water comes in contact with building components such as walls, roofs or floor, these components acts as a medium to help water to absorb into the building.	Main contractor will repair which piping in the wall that is leaking and than skim the wall and then repaint the spot.
3	Hairline crack As the paint on the wall dries, it shrinks and small fine cracks or splits may occur if the paint's stickness with the existing surface is not very effective. Poor adhesion is usually caused by improper surface preparation before painting, heat or moisture. These are one of the factors of hairline crack: poor paint job, low quality of paint and aging paint	In order to fix the crack, main contractor will skim the crack spot at the wall and then repaint.

4	Hollow tiles These happens because of the mortar that was used to join the tiles and the concrete are very thin. Therefore the mortar will slowly disappear during the curing stage and will not compact as it should be	The tiles will be removed because of thin mortar inside it. Therefore, the surface area will be clean to prevent from any inconvient to happen again and the reinstalled the tiles.
5	Wrong floor slope Creating a gradient in a wet room is one of the most important components of wet room construction and to guide water to drain efficiently. The minimum recommended fall is 12mm, and the slope needs to be formed into the floor itself.	Wrong floor gradient can be resolved by taking off all the tiles. Cleaning process is needed in order to remove dusts and dirt after all the tiles is removed. Then, apply mortar and adjust the gradient using the water balance tool. Wait until the mortar to dry in 2-3 days then install the tiles as usual.

Table 6 : Factors and solution

CHAPTER 4.0 CONCLUSION

As a conclusion for this report regarding to Defects Rectification during Defect Liability Period (DLP), we can conclude that defect rectification is important in every completed project as it can be determined by a system created by the developer, Defect Management System (DMS). The purpose of this rectification work is to maintain the building durability and stay in good condition in order to avoid from defects keep happening and may causes more costs for defect rectification in the future. Objectives of this report are to investigate the flow of defect rectification during Defect Liability Period (DLP), to investigate the types of defects in the building and to investigate the causes and solutions for the defects occurred.

It is concluded that defect rectification for this site is using a new methods, as it is slightly different with other sites. Before this, this developer is using hard copy for defect rectification as the property purchasers need to fill in a form for defects but now, all the purchaser only need to log in and submit their defects through online. This report provided the flow of defect rectification during Defect Liability Period (DLP), before Vacant Possession (VP) and after Vacant Possession (VP).

Next, from this report, the types of defects occur in new building also being studied. As the building is completed, non-structural defects usually happened such as leaking, electrical installation problems, and any other minor defects.

As the types of defects are being studied, the developer also gave exposure about the causes of the defects, how the defects occurred and the way how to rectify the defects.

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APPENDICES