



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

**LEAKING :- THE FAILURE OF DESIGN**

**Prepared by:**

**MUHAMMAD ABDUH ALMUBARAK BIN MOHAMMAD  
SHUKOR**

**2016458488**

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

**DECEMBER2018**

It is recommended that the report of this practical training provided

*by*

**Muhammad Abduh Almubarak Bin Mohammad Shukor**  
**2016458488**

**entitled**

**Leaking :- Failure of Design**

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

Report Supervisor : Cik. Nor ~~Azizah~~ Binti Talkis.  
Practical Training Coordinator : En. Muhammad Naim Bin Mahyuddin.  
Programme Coordinator : Dr. Dzulkarnaen Bin Ismail.

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

**DECEMBER 2018**

**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 Group for a duration of 14 weeks starting from 3 September 2018 and ended on 7 December 2018. It is submitted as one of the prerequisite requirements of DBG307 and accepted as a partial fulfillment of the requirements for obtaining the Diploma in Building.

Name : 2016458488

UiTM ID No : Muhammad Abduh Almubarak Bin Mohammad Shukor

Date : 18 December 2018

## **ACKNOWLEDGEMENT**

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

I would like to extend my heartfelt gratitude for the guidance, advice and help rendered throughout the period of training by the following group of amazing individuals. First and foremost, I would like to thank Mr Eddie Lim Kim Eng for the opportunity given, to conduct my training in his esteem company. His team of professionals comprising of, Mr Aw Kok En, En Atos Jamaluddin and En Hamzah Abdul Majid, and En Muryadi Ahmad have enabled me to learn and develop my understanding, knowledge and feel of real time projects, and the theory involved in analysis of structures, building and civil works. They are also responsible towards streamlining and assessing my training. Also to the site personnel Mr Lim Koon Ling and Mr Alvin Chin from SCP Group, High Speed Company and Cretive Venture Company who have extended their cooperation and help to further enhance my ability in understanding the procedures in construction and site administration, tests procedures and best practices in the industry. It is an honour for me to be given the opportunity to 'work' with all of you.

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 Cik Nor Azizah Binti Talkis, Supervising Lecturer, En Muhammad Naim bin Mahyuddin, Practical Training Coordinator and Dr. Dzulkarnaen bin Ismail, Program 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**

Defects is the last stage in construction line where the purchaser will check the house and submit defects notification to be rectify as listed. Many defect that been submitted to the developer can be described as 'demand' from purchaser. The purpose for this report is for research and find the effective way to solve the defect in time of Defect Liability Period (DLP).

During the DLP, the most practical way to determine the defect solution is by observation and interview the senior supervisor and project manager or can be done by doing the research regarding the defect.

In conclusion, to make the defect progress is smooth, the person in-charge should be thinking further and know how to explain the situation to the purchaser.

## LIST OF TABLES

Table 2.1	Summary Profile of Kenwingston Group	7
Table 2.2	Completed Projects	9
Table 2.3	Incomplete Projects	12

## LIST OF FIGURES

Figure 3.2	Spot of Leaking	15
Figure 3.3	The Causes of Leaking	18
Figure 3.4	Method Rectify The Leaking	21

## **LIST OF DIAGRAM**

Table 2.1	Kenwingston Group Organization Chart	8
-----------	--------------------------------------	---

## CONTENTS

## PAGE NO

Acknowledgements	i
Abstract	ii
Contents	iii
List of Tables	iv
List of Figures	v
List of Diagram	vi

### **CHAPTER 1.0 INTRODUCTION**

1.1	Background and Scope of Study	2
1.2	Objectives	4
1.3	Methods of Study	5

### **CHAPTER 2.0 COMPANY BACKGROUND**

2.1	Introduction of Company	6
2.2	Company Profile	7
2.3	Organization Chart	8
2.4	List of Project	
	2.4.1 Completed Projects	9
	2.4.2 Project in Progress	12

### **CHAPTER 3.0 CASE STUDY**

3.1	Introduction to Case Study	14
3.2	Identify the Spot of Leaking	15
3.3	Identify the Causes of Leaking	17
3.4	Identify the Best Method Rectify the Leaking	20

### **CHAPTER 4.0 CONCLUSION**

4.1	Conclusion	23
-----	------------	----

## REFERENCES

## CHAPTER 1.0

### INTRODUCTION

#### 1.1 Background and Scope of Study

Along the internship, the site that I have been placed is at KL Trader Square Gombak. One of the completed site in Kenwingston Group. The site is located in the center of village town and not too far from Kuala Lumpur Center. This is one of the apartment project that carried out by the Kenwingston Group as the main contractor. The developer of KL Trader Square project is SCP Group which is the well known developer company who started only by doing parking project and now also the developer for the building project.

The process that been focus in KL Trader Square is Handover Process and Defects Liability. During 14 weeks internship, all the process is about how to handle the purchaser or owner and how to manage the workers to completed the defects within the 30days from the defects notification submission. This process can be completely complicated if the way of managemet is messy.

The purpose of this report is to identify the major and minor defects or faults in the existig building. It is to give the rights to the purchasers to see the condition of the unit or house bought by them. It is also to give them the oppurtunity state unsatisfy workmanships regarding the units. The defects and the rectification work of defect inside the unit can be discovered and understanding by the inspection with Clerk of Work (COW) and the purchaser. Based on this report, Person in Charge (PIC) from the Main Contractor need to make sure the defect must be completed within 30days from the submission date as stated in Sales and Purchasers Agreement.





Defect process is the last part in construction stage. Which the stage where is the purchaser complaint about the condition of their unit or house. The defects can be anything of the problem that happen inside the unit. For example the crack of wall, the clogged, the chip or damage at the door, leaking and etc.. Warranty for defects liability is two years given by the developer, so all the defects in this two years will be repaired by the main contractor. Although the warranty is two years, however if the unit or house already make the renovation the part that been renovated will excluded from warranty.

The aim of defect process is to make sure that the unit sold will be no more problem and to prevent the further cost repairing. This also to give the comfortable to the purchasers regarding the unit that will be stayed in very good condition.

## **1.2 Objectives**

1. To identify the spot of leaking.
2. To explain the causes of the leaking.
3. To determine the best method to rectify the leaking.

### **1.3 Method of study**

Observation :- there is many defect that I observe during repairing such as the repairing of skim coat for wall and ceiling, the repairing for damaged tiles, repairing the unbalanced door, leaking and much more.

Interview :- there is a time when I will ask question to my supervisor who incharge me about the problem that I can solve and seek the solution. There is many thing that I did not learn in my studied and can get only by internship or working under a big company. Also if there is a big issue that required advice from my Project Manager and from developer staff who has more experience, I will go and ask them. For the example the leaking problem.

## CHAPTER 2.0

### COMPANY BACKGROUND

#### 2.1 Introduction of Company

Kenwingston Sdn. Bhd. provides construction and property development services. It also supplies various types of heavy machinery for construction projects in Malaysia. The company was founded in 2010 and is headquartered in Wangsa Maju, Kuala Lumpur, Malaysia. Kenwingston Sdn. Bhd. are a Construction Industry Development Board (CIDB) Malaysia 80% scorer based on the Quality Assessment System in Construction (QLASSIC). Such a track record is exceptional in the country's construction industry.

This company use a valued engineering and effective construction best practices and through sheer hard work to deliver the construction and developments. The team comprises young and dynamic multidisciplinary professionals and experts in the fields of construction, precast design, precast set-up and provision of machinery.



Kenwingston's achievement in the construction industry has been great. This company track record shows massive growth in the company order book within five years into the operations. Back in July 2010, the company had a paid-up capital of RM16 million. As of 31 December 2016, the total value of the completed projects stood at multi-billion ringgit comprising high-rise buldings, high-end shop offices and super link houses.

The started year of 2018, Kenwingston is now a property developers well. Construction, which used to be the main area of business, now ably supports the property development activity. Why Kenwingston decided to move from construction to development is because expertise in property construction has empowered this company to build even more quality products to achieve a higher level of customer satisfaction.

This company continually working hard to deliver luxurious homes and they want the customers to feel proud buying properties developed by Kenwingston and to feel a sense of belonging as a Kenwingston community. Kenwingston are driven by a passion for innovation and embrace harmony between human habitation and nature in our projects through architecture to improve the quality of life and liveability.

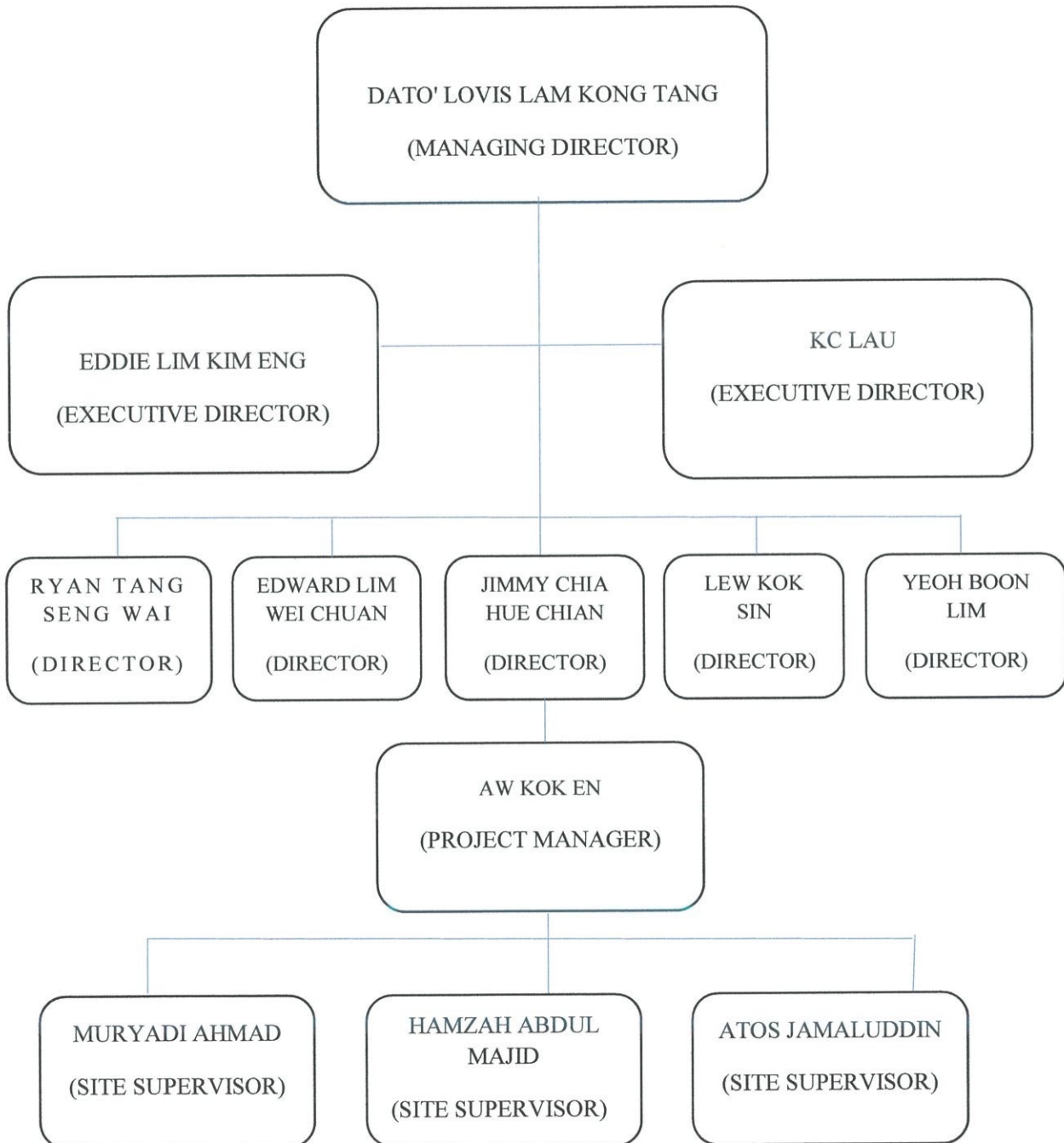
## 2.2 Company Profile

**Table 2.1 : Summary Profile of Kenwingston Group**

Company logo	
Name of Company	Kenwingston Group
Date of Incorporation	<p>As a Main Contractor :- 2010</p> <p>As a Developer :-2018</p>
Address with map	<p>No. 82, Seksyen 5, Wangsa Maju, KLSC, Jalan Wangsa Delima 6, Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.</p> 
Tel No	
Fax	
Email	kenwingston.my@gmail.com
Authorize Capital, Paid-up Capital	RM 16 Million
CIDB Registration	G6





### 2.3 Organization Chart

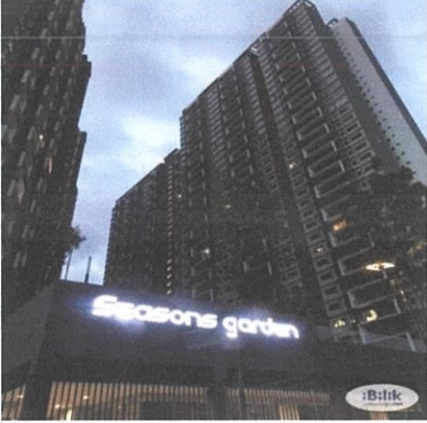



**Diagram 2.1 : Kenwingston Group Organization Chart**

## 2.4 List of Project

Figure 2.2 : Completed Projects

Name	Location	Project Period /Developer	Project Value (RM)
<p>The wharf residence</p> 	<p>Jalan Tasik Prima 6/2 &amp; Persiaran Tmn Tasik Prima 3, Taman Tasik Prima, 47150 Puchong, Selangor</p>	<p>3Years Bolton Berhad</p>	<p>160,000,000</p>
<p>De Centrum</p> 	<p>Jalan Ikram-Uniten, Kawasan Institusi Bangi, 43000 Bandar Baru Bangi, Selangor</p>	<p>3Years De Centrum Development Berhad</p>	<p>150,000,000</p>

<p>Almyra Residence</p> 	<p>Bandar Puteri Bangi, 43000 Kajang, Selangor</p>	<p>2Years 8Months  IOI Properties</p>	<p>200,000,000</p>
<p>Season Garden Residence</p> 	<p>Jalan 26/26, Seksyen 10, Wangsa Maju, 53300 Kuala Lumpur</p>	<p>2Years  SCP Group</p>	<p>180,000,000</p>
<p>Conezion Residence</p> 	<p>City, Lebuhr IRC, Ioi Resort, 62502 Putrajaya, Wilayah Persekutuan Putrajaya</p>	<p>3Years  IOI Properties</p>	<p>250,000,000</p>

<p>KL Traders Square</p> 	<p>289, Jalan Gombak, Kampung Kuantan, 53000 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur</p>	<p>3years SCP Group</p>	<p>200,000,000</p>
--	---	-----------------------------	--------------------

**Figure 2.3 : Ongoing Projects**

Name	Location	Developer	Project Value
<p data-bbox="167 510 520 539">Kenwingston Square Garden</p> 	<p data-bbox="703 555 847 786">Persiaran Bestari, Cyberjaya, 63000 Cyberjaya, Selangor</p>	<p data-bbox="890 633 1051 707">Kenwingston Group</p>	<p data-bbox="1080 651 1238 680">300,000,000</p>
<p data-bbox="167 866 288 896">Sky Lofts</p> 	<p data-bbox="699 920 858 1227">Lot 39017, Jalan Subang 1, Mukim Damansara, Daerah Petaling, Selangor Darul Ehsan</p>	<p data-bbox="906 1070 1035 1144">Sky Loft Properties</p>	<p data-bbox="1080 1088 1238 1117">260,000,000</p>
<p data-bbox="167 1384 432 1413">Kenwingston Avenue</p> 	<p data-bbox="699 1413 858 1883">Jalan Sungai Besi, Lebuhraya Sungai Besi, wilayah persekutuan, 58200 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.</p>	<p data-bbox="890 1615 1051 1688">Kenwingston Group</p>	<p data-bbox="1080 1632 1238 1662">220,000,000</p>



<p>The Henge</p> 	<p>Jalan Perdana Metro Barat, Kepong, 52100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur</p>		<p>200,000,000</p>
--	--	--	--------------------



## CHAPTER 3.0

### CASE STUDY

#### 3.1 Introduction to Case Study

KL Trader Squares include of 97 unit of shoplots, over 1000 surface of parking bay, one floor for condo facilities and five blocks of 30-storey serviced apartment. Totally 95% of this project are completed and only common area left to be finish by end of this year. This building was located at the Gombak Batu 4 where 10 minutes about from Kuala Lumpur Center.

There is six type of unit in KL Trader Square where it decide the price of each unit. The type of the unit were divided into Type A, Type A1, Type B, Type B1, Type C, and Type D. Area for Type A and A1 can be found only in Block A where it the cheapest unit among the others. Area for Type A is 842 sq.ft (3 rooms) and Type A1 is 864 sq.ft (3 rooms) and the first block were built during the construction and contain 18 units in each floor. Block A had village view where Kampung Bandar Dalam, Kampung Sungai Merali and Kampung Puah located at. For Type B and Type B1 unit can be found in block B and block C. Area fo Type B is 940 sq.ft (3+1 rooms) and Type B1 is 932 sq.ft. (3+1 rooms). Block b is the second block were built after Block A and Block C is the last block were built. Block B contain 20 units in each block but for block C contain 24 units in each floor. The last Type C and Type D can be found in Block D and Block E. this last two block is the expensive unit because the area for Type C is 918 sq.ft and Type D is 1059 sq.ft. There are many unit unsold yet in block D and block E because of the market price. For block D contain 14 units in each floor and 12 units for block E.

However, KL Trader Square now is one of the focus place and centered because many shop already open for business. From the restaurant until the furniture shop can be found at there. Aslo for the shop lot, there is only staicase were provided for 3-storey shop.

### 3.2 Identify the spot of leaking

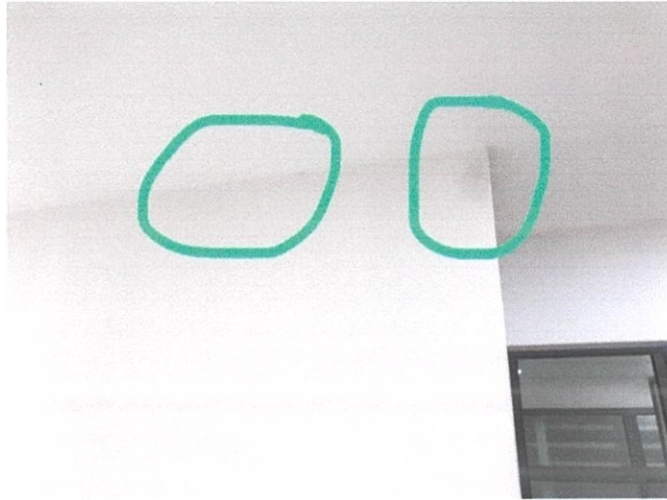
To identify the leaking there will be the water mark left at the wall or ceiling. Through the water mark, the spot of the leaking can be identify where the water come from. Is it from the slab or incoming pipe. All the incoming water/pipe can be found inside the ceiling. The box up that contain the Rain Downpipe, Air-Conditioner Water Outlet Pipe, and Drainage Pipe is located inside the bathroom.

As the design for this building, all the piping is located inside the bathroom. So the process to identify the leaking can be done or check inside the unit or at below unit. Most of the water marks can be seen at the outer wall of bathroom in below unit. Not all the water or leaking can be seen on the spot. Sometime it take time for the water to come out or to be seen at the wall or ceiling.

During the internship there is three places that can be seen the water mark. First at the yard ceiling, second at the upper edge of balcony wall or beam and last one is at the outer bathroom wall.



**Figure 3.2.1 :** Water mark on the top of air-conditioner.



**Figure 3.2.2 :** Water mark at the edge of slab in dining area.

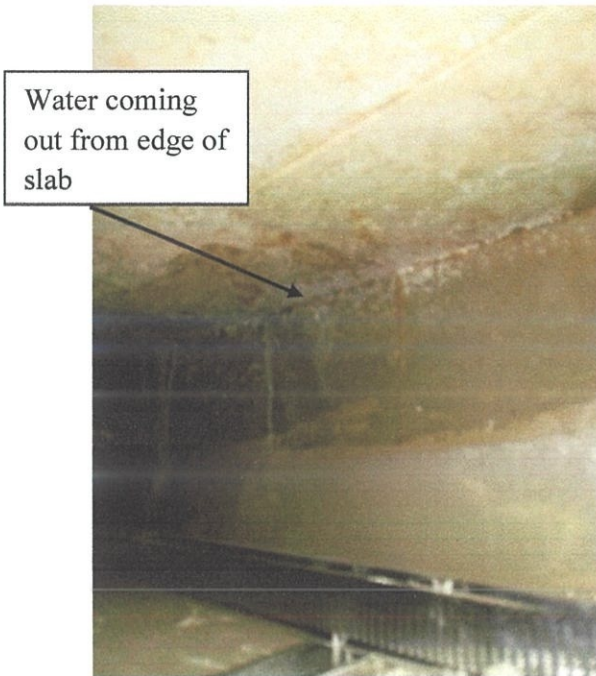
### **3.3 Identify the causes of leaking**

Leaking can be caused by many things and problems. Generally, the leaking is caused by pipe damage. The pipe damage can be divided into four generally: outlet drainage damage, rain down pipe damage, air-conditioner pipe damage, whether water outlet damage or copper pipe damage, and the last one is incoming pipe damage.

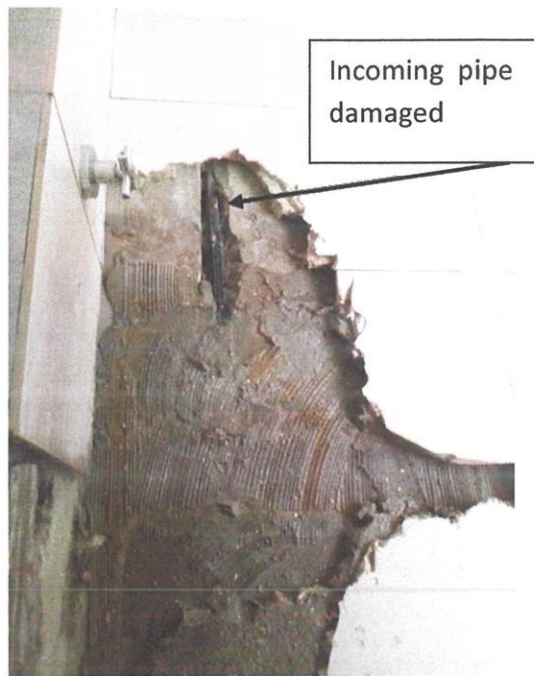
In addition, what makes the leaking worse is the failure of waterproofing. According to the submission defect regarding leaking, almost 75% of the leaking is from the slab, which means water penetrates inside the concrete slab when water is used on the unit above or when the pipe is damaged. This can be considered as a failure of waterproofing and a failure of design. The failure of design can be seen when the installation of the water flow out piping is inside the bathroom.

Waterproofing is not laid at the box up wall and slab, this is one of the reasons why water can penetrate through the slab and wall when the piping inside the box up is damaged. Box up is a vertical box built for the rain down pipe, drainage pipe, and air-conditioner water outlet.

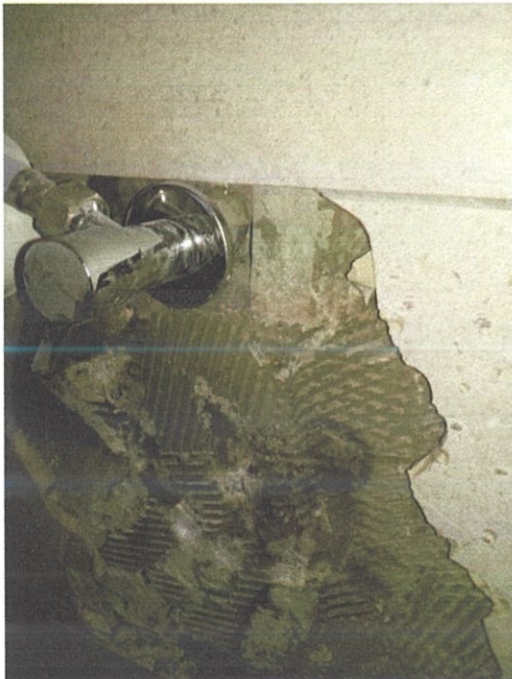




**Figure 3.3.1 :** The water from slab.



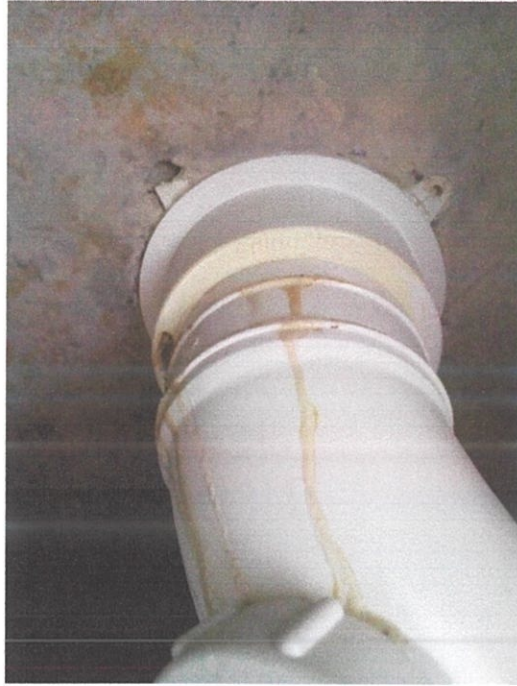
**Figure 3.3.2 :** Leaking from pipe.



**Figure 3.3.3 :** Wall wet near angle valve.



**Figure 3.3.4 :** Water coming out from floor.



**Figure 3.3.5 :** Connection of pipe not sealed properly.



**Figure 3.3.5 :** Slab got a big hole.



### **3.4 Identify the best method to rectify the leaking**

Leaking is the most difficult defect that need to be handle by the contractor. Any mistake or careless may cause the problem to come again and again and affect company reputation and name. The fastest way to solve the leaking is by PU Injection Grouting but how long it can be last? PU Injection is not the best method to solve the leaking. As per information when the leaking happen, there will be causes. Generally the leaking happen from the damaged or improper installation of piping.

As for the KL Trader Square design, all the piping were install inside. From the incoming water until discharge water. Many of the piping that damaged or leaking is inside the box up where down rain pipe located any it was the most pipe that got problem. Some of them are not sealed properly and some of them got minor damaged. When the water trapped inside the box up, it will fill up the box up until the water coming out through the wall by its force of pressure.

So there is several method that can be use to rectify the leaking. First, all the grouting need to be fill properly. All the holes eventhough the smallest hole can be the reason of leaking. Second the installation of the tiles need to be alert. The vertical tiles need to be put on top of the horizontal tile. This shown that the water can go through cement but not through ceramic tile. Third is to rectify the gradient of the floor tile. Need to be sure that the water can flow smoothly into the floor trap and there is no ponding inside the bathroom. This is the simple way for repairing the leaking.

If the leaking is from the box up, first thing need to do is found out where is the water coming. The floor area inside the box up need to do some waterproofing and make a gradient into the floor trap by spout pipe. Spout pipe is very helpful to minimize the amount of water to be absorbed by wall or plaster.

The last method that can be used when all the method above fail is re-do waterproofing. This method is very difficult way to do especially if there in an owner inside the house or unit. It is takes time and a lot work need to be done before the process laying waterproofing. All floor finishes need to remove and the screeding need to hack . This process at least takes 7 days to complete if the first layer of waterproofing success.

The method to rectify the leaking is up the contractor whether to save cost or to save the long lasting condition of the unit or house built by them. All the method have the advantage and disadvantage.



**Figure 3.4.1: An opening gap or grouting between tiles.**

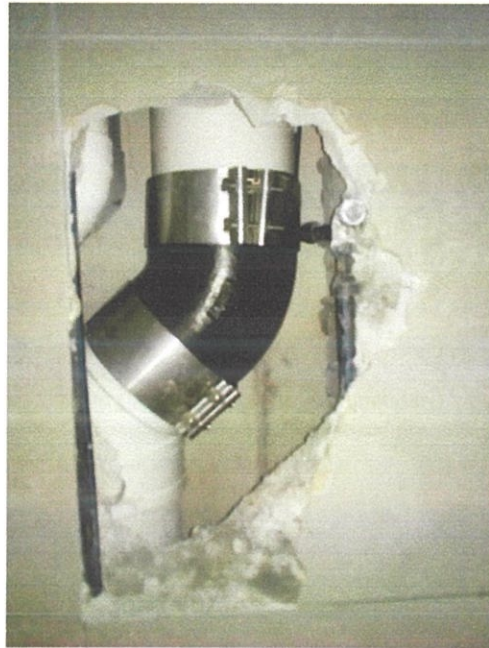


**Figure 3.4.2: Process of checking and filling the grouting**





**Figure 3.4.3: Process of waterproofing and leveling inside the bouxup.**



**Figure 3.4.4:** 45 degree elbow pipe rectify inside boxup

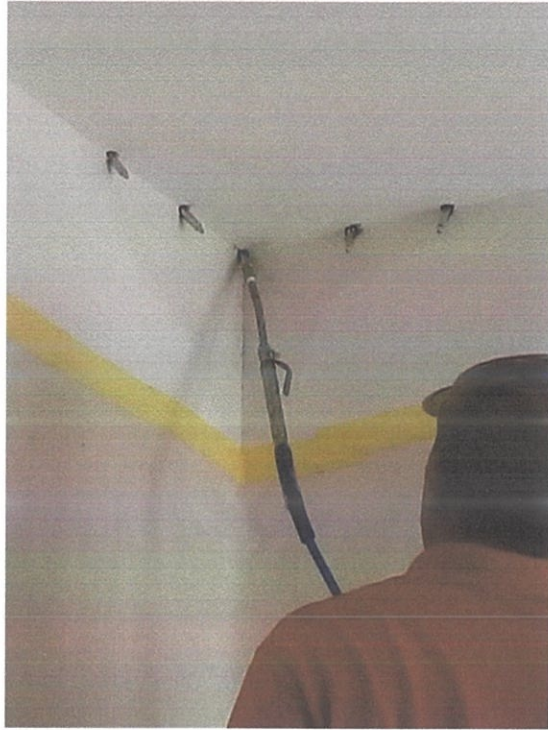
The first point to be hacking if there is leaking from boxup is at the 45 degree elbow pipe located. The most common problem is the 45 degree elbow pipe got leak around the connection or the elbow got crack at the bottom side due to the construction material inside such as skim and mortar waste. This happen because of the low quality of glue that connect the pipe and the low quality of elbow pipe. The solution decided by the plumber to rectify the problem is by replacing the pvc 45 degree elbow to metal material connected by aluminum clip as shown.



**Figure 3.4.5 :** Big hole on slab covered by tile.

This is the example of incomplete work done by labour. This hole was one of the reason there is leaking in below unit. This hole suspected to be point shower drainage but the point had to be change in some reason. During the installation the of tiling, the tiler did not inform the person in-charge regarding this problem and just laying the tile without casting the hole back.





**Figure 3.4.6 :** The process of PU Injection

The figure shown the process of pumping the grouting chemical into the slab through the packer. The pumping will be stop once the grouting chemical can be seen coming out from the wall. The wall will be covered by plastic as protection to the wall.

## CHAPTER 4.0

### CONCLUSION

#### 4.1 Conclusion

Overall, after my long internship in the construction field at KL Traders Square Gombak Kuala Lumpur, Process defect is quite important in the stage of construction. This is based on the defects submission daily. I found that almost everyday here is an owner who will come and submit defect regarding their unit.

This process is to make sure that the condition on that unit is in good condition like what they better get when bought a new apartment. This stage also to make sure that the owner will satisfy with what we serve for them.

The most important in rectify the leaking is to spot the leaking, where the leaking exactly from. This to make sure plumber can easily predict the major problem. Next, find out the causes of leaking. It can be at anywhere through the connection between angle valve and pipe, piping installation and the position of installation tiles.

This report was permanently to show that there are many defect that can be happen after construction complete. This also will make us more aware in future and try as hard to minimize the defects.

## REFERENCES

### **Books:**

Roy Chudley, R.G (1982). Building Construction 11<sup>th</sup> Edition.

Laws of Malaysian, Uniform building By-Laws 1984 (G.N 5178/85), International Law Book Services, Malaysia.

### **Website :**

Company Background and Profile

<https://www.kenwingston.com>.