

**CENTRE OF STUDIES  
BUILDING SURVEYING  
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING  
UNIVERSITI TEKNOLOGI MARA**

**AN INVESTIGATION ON CORROSION OF PIPING MATERIAL FOR  
APARTMENT**

**AIMI HAZIRAH BINTI AB RAHIM  
(2010298024)**

**Academic Project submitted in partial fulfillment of the requirements  
for the degree of  
Bachelor of Building Surveying (Hons)  
Centre of Studies in Building Surveying  
Faculty of Architecture, Planning & Surveying**

**JULY 2012**

## ACKNOWLEDGEMENT

I wish to express my sincere appreciation to my research supervisor Dr. Norsalisma Binti Ismail, who has guided me through the entire process of this research. Her guidance and constructive leading has through me well and has always been good experience to be able to undergo my final project under her supervision.

I am overwhelm with gratitude to those who have shown their full support through the whole process of completing my final project especially my parent who always been motivating me with their words of encouragement, my sister for her ideas that they have contribute to my final project.

In addition, also a thousand thanks to friends who have helped me in giving their opinions and suggestions to formulate and give me a complete picture my final project report.

I am also very thankful to all of the support given by all of the companies who has willingly given their best corporation to my final project. Their corporation has made my final project a successful.

*Thank you.*

## **ABSTRACT**

Corrosion is a natural process and cannot be prevented in plumbing system. The natural environments with the presence of water and oxygen combined with the steel will formed the corrosion exist and this situation will give effects towards the users.

In my research, I try to find out the types of material and the problems happened in plumbing system affected by the corrosion towards the building and users that have been researched. The information was done by an interviews and observation to the maintenance office of the building.

For the conclusion and recommendation, I give my opinion based on the research and information that I get to ensure and avoid the corrosion problems can be reduce in the building for the future performance of the building.

## TABLE OF CONTENTS

ACKNOWLEDGEMENT .....	i
ABSTRACT .....	ii
TABLE OF CONTENTS.....	iii
LIST OF FIGURE.....	viii
LIST OF TABLE .....	x
LIST OF DIAGRAM.....	xi
CHAPTER 1: INTRODUCTION .....	1
1.1 GENERAL OF STUDY .....	1
1.2 ISSUES OF THE TOPIC/PROBLEM STATEMENT .....	3
1.3 OBJECTIVES .....	5
1.4 SCOPE OF STUDY .....	5
1.5 LIMITATION OF STUDY .....	6
1.6 METHODOLOGY OF STUDY .....	7
1.7 THESIS OVERVIEW .....	8
CHAPTER 2: LITERATURE REVIEW.....	10
2.1 INTRODUCTION.....	10
2.2 WATER DISTRIBUTION SYSTEM.....	12
2.2.1 Structure of Distribution.....	14
2.2.1.1 Water Supply Services (Clean Water Operation) .....	14
2.2.1.2 Sewerage Services (Waste Water Operation).....	16
2.2.2 Regulation of Water Distribution .....	18

## **CHAPTER 1: INTRODUCTION**

### **1.1 GENERAL OF STUDY**

Plumbing system is one of the important elements that are required in every building whether residential or commercial building. This is a system that been installed in the building for the distribution of drinking water and the removal waterborne waste.

There are two types of material available for plumbing systems that usually used which is metallic and non metallic materials. Metal alloy such as galvanized steel or iron, copper, polybutylene, unplasticized polyvinylchloride (PVC), brass, polyethylene (PE) are widely used in plumbing systems in our building due to its durability to high pressure pumps, but material such as lead, cadmium and arsenic are not anymore in use because of its toxicity (Brandon,2010).

Galvanized steel or iron was the traditional piping material and widely used in plumbing industry especially for the conveyance of water and wastewater. Galvanized piping still being used extensively in the fire protection industry but there is increasing limitations on how and where galvanized piping may be used in the building systems.