

**Faculty of Architecture, Planning and Surveying
Universiti Teknologi MARA**

**THE EFFECTIVENESS OF GAS SUPPLY SYSTEM FOR
HIGH-RISE RESIDENTIAL BUILDING**

***This dissertation submitted in partial fulfillment of the
Requirement for the Bachelor of Building Surveying (Hons.)***

MUNIRA BINTI MANSOR

ABSTRACT

Nowadays, gas has become one of the important raw energy supply in almost every field. Currently, gas has been developed as one of the energy supply for residential. At first, it is adapted in industrial sector but parallel with the economic development in Malaysia, gas supply system has been used for residential sector too. This proves that gas can be used commercially, whether for industrial sector or residential sector.

Gas supply system for high-rise residential buildings in Malaysia, comes in two types. However, only recently, gas supply system for cooking purposes is adapted for high-rise building. Since then, many high-rise residential buildings adopted this system as part of the services offer for the residence. This is the reason why case studies on both systems is being done, in order to know which gas system is more efficient to cater the total numbers of residence living in one block of the high rise building. As a matter of fact, other considerential factors on the selection of gas supply system for high-rise buildings and the effectiveness of such systems are being highlighted and studied too.

In Malaysia, the authority has setup guidelines for gas consumption which are known as SIRIM MS 830 and Gas Supply Act 1993. Both of these guidelines stat the terms and conditions for gas supply method and installation in whatever field or sector that adapted this energy.

CONTENTS

Acknowledgement

Abstract

List of Pictures

List of Figures

List of Tables

List of Appendices

Chapter 1: Introduction

- 1.1 Introduction
- 1.2 Issue
- 1.3 Objective
- 1.4 Scope
- 1.5 Hypothesis
- 1.6 Methodology

Chapter 2: Background Study

- 2.1 Definition of Study
- 2.2 Historical Background
 - 2.2.1 World Gas Industry
 - 2.2.2 Development of Gas Usage In Malaysia
 - 2.2.3 Development of Gas Supply For Residential Building

- 2.3 Peninsular Gas Utilisation Project
 - 2.3.1 The Concept
 - 2.3.2 The Distribution Strategy
 - 2.3.3 The Phase of PGU Development

- 2.4 Properties of Gases For Residential Uses
 - 2.4.1 Liquefied Natural Gas (LNG)
 - 2.4.2 Liquefied Petroleum Gas (LPG)

- 2.5 Gas Supply System For High-rise Residential Building
 - 2.5.1 Purpose of gas supply system application
 - 2.5.2 Advantages of gas supply system
 - 2.5.3 Disadvantages of gas supply system

Chapter 3: Technical Aspects

- 3.1 Gas Distribution System For High-rise Buildings
 - 3.1.1 Gas Assisted Fluid Delivery System
 - 3.1.2 Direct System
 - 3.1.3 Indirect System

- 3.2 Gas Supply System
 - 3.2.1 Operation Process
 - 3.2.2 Pressurization

- 3.3 Gas Safety Control System
 - 3.3.1 Background of The Invention
 - 3.3.2 Object of The Invention
 - 3.3.3 Safety Requirements

- 3.4 Piping System
 - 3.4.1 The Underground Piping System
 - 3.4.2 The Building Piping
 - 3.4.3 LPG Bulk System

Chapter 4: Maintenance Procedure For Gas Supply System

- 4.1 Maintenance Concept
 - 4.1.1 Purpose
 - 4.1.2 Function
 - 4.1.3 Scope of Maintenance
- 4.2 Maintenance Method
 - 4.2.1 Maintenance And Precautions During Installation Process
 - 4.2.2 Types of Maintenance
- 4.3 Testing
 - 4.3.1 Testing Procedures
 - 4.3.1 Leakage Detection
 - 4.3.2 Pneumatic test
 - 4.3.3 Purging
- 4.4 Emergencies and Response Procedure
 - 4.4.1 Instructions For Caller
 - 4.4.2 Response By the Maintenance Staff
 - 4.4.3 Nature of Leakage
 - 4.4.4 Procedure For Gas Service During Outage
- 4.5 Response Procedure For Leakage