ELECTRICAL DESIGN FOR POLICE HEAD QUARTERS COMPLEX

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ABSTRACT

In building design, electrical installation is important, so that power can be distribute at each location required. This proposal describes a case study how electrical distribution is design in a facility. This case study will involve MATLAB program by considering load estimation, lighting design and cable sizing. Load estimation will involve maximum demand and total connected load calculation.

This case study involves the design of Police Head Quarters which comprise of meeting room, general office, lift lobbies and etc. The design of the main switchboard and distribution board is calculation of installation. Besides, this case study will involve the earthing installation that means for calculation of conductive protective circuit cable.

Keyword: Illuminance, load estimation, cable sizing, and lighting design

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CHAPTER 1

INTRODUCTION

1.1 Introduction

A low-voltage (LV) system refers to distribution voltage below 1000V. In Malaysia, LV systems refer to the three-phase four wire system of $415V_{ac}$ between line-to-line, and 240V between line-to-neutral.

In three-phase installation, rating use is 415V and 50Hz frequency. Standards and specifications installation are referred to Malaysian Standard (MS) and Jabatan Kerja Raya (JKR) specification, IEE regulation, Illumination Engineering UK Code Practice. From these specifications will determine maximum demand (MD), Main Switch Board (MSB), Sub Switch Board (SSB), Distribution Board (DB) design.

Beside that, lighting design it also determines light design using lumen method. Each room has a different light design required socket outlet, lighting, and PA system and is also determined by specification. AutoCAD will be used in the design drawing. This drawing includes schematics diagram, power, switch socket outlet, PA system and light diagram.