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**ECS358**

**CIVIL ENGINEERING DESIGN PROJECT**

**TECHNICAL REPORT**

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## 1.1 INTRODUCTION

### 1.1.1 REQUIREMENT OF BUILDING-BY-LAW, FIRE SAFETY REGULATION

In Malaysia, fire safety regulations for buildings are primarily governed by the Uniform Building By-Laws (UBBL) 1984 under the Street, Drainage and Building Act 1974. These regulations, which are comprehensive and cover various aspects of building safety, including fire safety, are enforced by several key authorities and standards:

- Uniform Building By-Laws (UBBL) 1984: These regulations provide guidelines for the design, construction, and maintenance of buildings in Malaysia. They encompass critical fire safety requirements such as fire resistance, compartmentation, smoke venting, and control measures.
- Fire Services Act 1988 and Fire Safety Regulation 2008: Enforced by the Fire and Rescue Department, these laws mandate stringent fire safety standards for buildings. They include provisions for fire prevention, detection, suppression systems, escape routes, and emergency procedures.
- Malaysian Standards (MS): Specific standards under MS detail requirements for fire-resistant materials, fire detection and alarm systems, fire extinguishing equipment like sprinklers and fire hydrants, and emergency lighting.
- Department of Occupational Safety and Health (DOSH): Responsible for overseeing occupational safety and health regulations, DOSH also includes fire safety requirements in workplaces and industrial buildings.
- Local Authorities: Each state in Malaysia may impose additional regulations or guidelines specific to local building codes and fire safety requirements, ensuring compliance and safety across diverse regional needs.

Compliance with these regulations ensures that buildings are not only structurally sound but also equipped to handle fire emergencies effectively, thereby safeguarding the lives and property of occupants. Regular inspections by competent authorities ensure that fire safety measures are always maintained.

### 3.1 SUMMARY OF DESIGN WORKS

This project underscores the critical importance of architectural drawings at the project outset. Beginning a project requires comprehensive drawings, establishing a project schedule, and developing essential plans for each floor. Compliance with Eurocode 2, 2004 is integral for designing structural requirements and necessary designs.

Following this, calculating the bill of quantities becomes essential to estimate project costs accurately, enabling effective budgeting. This step ensures financial planning aligns with project needs.

Addressing discrepancies between manual and software calculations, manual methods involve inherent human error, contributing to differences exceeding 30%. This disparity often necessitates adjustments to accommodate safety margins and ensure structural integrity.

While detailed calculations from software tools aren't always transparent, the project provides practical application for knowledge gained from subjects such as ECM 256 for AutoCAD drawings, ECM 367 for Microsoft Project, ECM 366 for bill and quantities, and ECS 338 & ECS 268 for structural design. These courses prove invaluable in translating theoretical learning into practical solutions for real-world challenges encountered in this final semester project.