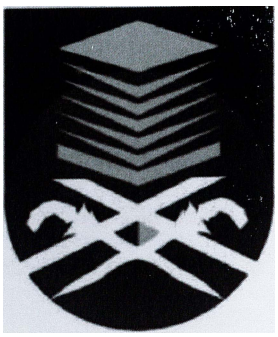

UNIVERSITI TEKNOLOGI MARA

ECS358
CIVIL ENGINEERING DESIGN PROJECT
TECHNICAL REPORT

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ACKNOWLEDGMENT

It's been a long journey for me, and it has finally come to an end, Alhamdulillah. All my efforts have made me accomplished all the tasks to complete this final year project. A lot of efforts been put into this project, but this project wouldn't been complete and possible to be done without any supports and help from many individuals.

Firstly, a big thanks to my lecturer, Sir Ahmad Idzwan Bin Yusuf for his guidance and advice throughout this project. Also thank you for my classmates for helping me through.

Finally, I want to express my gratitude to my family members for supporting me. Without their supports and encouragement, I will not reach this stage of completing this final year project.

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1.1 Introduction

1.1.1. Requirements of building-by-law, fire safety regulations

To provide uniform construction regulations that would apply to all local governments and structures in Malaysia, the Uniform construction By Laws of 1984 (UBBL) were developed. This clarifies the area of legal responsibility for the buildings, including the control of their architectural, structural, and fire protection capacities. With references to the standard, discuss construction requirements, health, and safety. Additionally, it expedites the handling of building approvals and references to the standard. Additionally, it expedites the procedure for building occupancy and permissions. The 1974 Streets, Drainage and Building Act governs fire safety in Malaysia through the Uniform Building-By-Law. Additionally, it is broken down into nine important sections: preliminary, plan submission for government approval, space, light, proper ventilation, temporary work, fire equipment such fire alarm, firefighting access, and fire extinguisher, and miscellaneous.

Part VII : Passive Fire Protection Requirements

By classifying fires and preventing collapse through structural fire resistance, a building's passive fire protection system can help save lives, property, and even the structure itself. The structural fire protection shield is one of the primary elements of passive fire protection. This is the component that must be protected from fire's effects. Numerous methods of fireproofing, including spray-on thin film intumescent, mineral wool wrap and insulation, and endothermic materials like gypsum-based plaster and cementitious products, can be utilized to achieve this protection. It also aids in maintaining its fire resistance when fire barrier apertures e installed on fire doors and windows.

3.1. Summary of design work

The goals of this project-based learning assignment for reinforced concrete buildings are to have students put into reality the essential concepts they have learnt in their civil engineering course. Through reading the drawings and proposing a double story building architectural plan to a private organization, I was able to learn about the actual situation of civil engineering work while working on this project. After that, we needed the soil investigation report to design the building.

The structural key plan, which contains the ground floor plan, first floor plan, and roof floor plan, is being created throughout this project using AutoCAD. In addition, Eurocode 2 was employed to determine the permanent load and variable load. We were able to locate the building's beam and column during the development of the key plan. Additionally, during this project, the slab, staircase, and pad footing will all be identified. The manual calculations we created are then based on the design appendix, which must recommend the right size for the structures for them to be safe. Based on the findings of the soil study report, we must calculate the soil bearing capacity for this project. This is to recommend the right scale for the building to be safe. Based on the findings of the soil study report, we must calculate the soil bearing capacity for this project. This is a proposal for the required size of the building's pad footing. Additionally, we were able to recognize the staircase kinds in this building.

The results of the manual calculations will be checked with Prokon, the design software we used, after they are finished. Based on a comparison between Prokon and manual computation, we can detect a small variation in the figures. We discovered that because this s ftware can identify the proper value for each element, it was used during the civil eng ering job. Lastly, when preparing for the project-based learning, we were able to use o understanding of soil engineering to address the civil engineering issue.