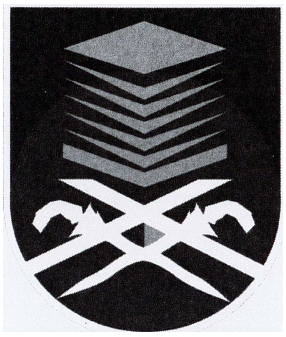

UNIVERSITI TEKNOLOGI MARA

ECS 358

CIVIL ENGINEERING DESIGN PROJECT

REINFORCED CONCRETE BUILDING DESIGN PROJECT & PROJECT BASED LEARNING (CASE STUDY)

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ACKNOWLEDGEMENT

First, I would like to express my gratitude to my studio lecturer for this course (ECS358), En. Ahmad Idzwan Yusuf. It is because he is the one that guided me throughout completing this assignment. Other than that, he would always give his feedback when I ask him questions regarding this project. Other than that, I would also like to thank my friends as they also help me a lot in competing this report. I am fortunate that I can finish this report with help from both lecturer and my friends. On top of that, I wanted to appreciate the Civil Engineering Faculty from UiTM as they are the one that constructing this assignment. This is because I learned a lot of knowledge especially in structural design. As a result, I learned on how to be a real civil engineer by solving the real-life problem. Lastly, I would also like to express my gratitude to Dr. Lee Siong Wee as she is the one that teach me in the lecture class for this course. She also helps me a lot in understanding the theory part to design the structural elements in this project. To conclude, this project will not be done without the help from any of them. So, I am very thankful for them for assisting me in this final year project.

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1.1.1.1 Submission of Plan for Approval Requirements

1) Deposited triplicate plans at the office of the local authority together with the fees.
2) Bring a statement showing for what purpose the building.
3) Bring a certificate of the qualified persons.
4) Attached a stamped copy of the relevant site plan approved by the competent planning authority complete with the duration, drawing and calculation.

A local authority shall accept any return of plan if the plan resubmits together with a certificate from the relevant competent authority. Other than that, a local authority shall reject or return the plan if it is certified by incompetent person. Lastly, all plans submitted shall be signed by the qualified person and the owner or his agent together with full address of the owner.

1.1.1.2 Change of Qualified Person

The qualified person shall be responsible for the proper execution of the works unless

1) With the agreement of the local authority another qualified person is appointed to take over.
2) The local authority agrees to accept his withdrawal or replacement at the request of the owner provided that the erection of a building has not commenced until another qualified person is appointed to take over.
3) The person has died or become bankrupt or cannot be found or has been deregistered from the register or from any other reason ceased to practice

1.1.1.3 Plans Required

a) Site Plan

1) The number of the lot and the section number.
2) The means of access of the site from the street and the name of the street.
3) The distance from the center and side of roadway distinctly figured on one of such plans.
4) The dimensions of the lots.

3.1. Summary of design works

At the end of this assignment, there are a few things that the students learned. The first one is that the students learned on how to read the architecture drawing to produce the structural drawing. The main structure that is drawn for the structural key plan are beams, slab, and column. Next, the students can determine the design parameters for every element that they must design in this assignment. The design parameters are characteristics strength of concrete (fyk), characteristics strength of steel (fck), unit weight of concrete, design life, exposure class and other. Meanwhile the elements that the students need to design are slab, simply supported beam, continuous beam, column, pad footing and staircase. On top of that, the students also learned on how to determine the weights of materials by referring to British Standard and Eurocode 1 and 2.

Other than that, the students are also able to construct the timeline of all this construction activities that need to be done by using the Microsoft Project Schedule. As a result, they can include the list of activities together with the time frame.

Another skill and knowledge that the students gained are the correct way on how to design and calculate the main reinforced concrete structure in the building. In this part, they can refer to the Appendix from UiTM that is following the Eurocode 1 and 2. Other than that, the students are also able to produce the detailing to show the dimension and reinforcement of all six structures. This detailing was done by using the AutoCAD. After that, the students able to design the same structural elements except staircase by using software which is Prokon. Therefore, the students can compare the output from the Prokon with the manual calculation. Furthermore, the students also able to do the taking-off and produce bill of quantities by referring to the detailing from the manual calculation.

Lastly, the students are capable to complete the case study that is required in this assignment. The first case study is to find the soil bearing capacity, while case study 2 is to design a flexible road pavement. Both case study can be the evidence that the students are able to use the knowledge from Soil Engineering and Highway Engineering in real life. As a conclusion, they can complete all the requirements for this assignment to produce the final report.