UNIVERSITI TEKNOLOGI MARA

ECS 358
CIVIL ENGINEERING DESIGN PROJECT

REINFORCED CONCRETE BUILDING DESIGN PROJECT & PROJECT BASED LEARNING

MUHAMMAD NAJMI NAJHAN BIN MOHD AZHAN
2020488778

DIPLOMA

FEBRUARY 2023

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful.

All praises to Allah for the completion of this Final Year Project. Thanks to Allah for the opportunities, trials and strength that have been shown to me to finish this project. During the process of completing this project, I have experience so many things that increase my knowledge about this course and changed my personality into a better one. My humblest attitude to the Nabi Muhammad S.A.W. whose way of life has been a continuous guidance to me.

Firstly, I would like to express my most gratitude to Ahmad Idzwan bin Yusuf. During the process to complete this project, he has given his best guidance and patience. He also has given encouragement and positive advice. For him to be our lecturer, it has been a pleasure and a great honour.

As a student who is currently studying at UiTM Campus Pasir Gudang, I am using this opportunity to express my thanks for everyone who has been supporting me through this course. I am thankful for their advice, criticism, and guidance. Because of their opinion, it illuminate the views on number of issues that related to this project.

I also would like to thank my family members. Without their support I could not manage to complete this project. They support me every time I failed and because of that I never give up and finished the project.

Lastly, my deepest gratitude goes to all my fellow friend who were with me and supporting me. They always helped me and give the best advice that I could ever ask. Especially to Nur Izzah and Nurul Maisarah, they have helped me throughout this Final Year Project.

May god shower the above cited personalities with success and honour in their life.

Table of Content

1.1.1 – Requirements of Building-by-law & Fire Safety Regulations.

1.1.1.1 – UNIFORM BUILDING BY LAW (UBBL)

Part 1: Submission Plan for Approval

1) The Required Terms:

   a. The requirement step during submission of plan for approval

   - Deposited triplicate plans at the office of the local authority together with the fees (If disapproved, one set shall be returned with explanation)

   - Bring a statement showing for what purpose the building

   - Bring a certificate of the qualified persons

   - Attached a stamped copy of the relevant site plan approved by the competent planning authority complete with the duration, drawings, and calculations/

   b. A local authority shall accept any return of plan if the plan resubmits together with a certificate from the relevant competent authority.

   c. A local authority shall reject or return the plan if it is certified by incompetence person.

   d. All plans submitted shall be signed by the qualified person and the owner or his agent together with full address of the owner.

2) Change of Qualified Person.

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

   - With the agreement of the local authority another qualified person is appointed to take over; or

   - 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.

   - The person has died or bankrupt or cannot be found or has been deregister from the register or from any other reason ceased to practice.

3.0. Conclusion

ECS 358 or Final Year project is without a doubt is the most challenging subject for us in semester 5. This project has two main projects in it. The first one being Reinforced Concrete Building Design Project and the second one is Project Based Learning. For the first project, we need to get architectural plan from architect. Then, from the drawing we chose a slab, a continuous beam, a column, a pad footing and a staircase. After that, we design them and draw the detailing. From the detailing we do taking off and bill of quantities. Also we did Microsoft Project to know the amount of time needed to complete the project. For the second project, Project Based Learning which are proposal for the design of flexible pavement. As a conclusion, this project is important for us as a civil engineering student who in the future will become and engineer.

3.1 Summary of Design Works

From the structural plan, we chose one for each structures in the building. Before we started calculating, the permanent load, Gk and variable load, Qk was determined. Then, we choose the slab. The slab I designed was two-way slab. For the continuous beam, I chose the beam that was attached to the slab I chose. The column I chose also attached to my beam and the column was a short column. For the pad footing, it was under the column I chose and by using the SI report that we got we managed to design the pad footing. For staircase, we determine the strength of the concrete we will use.