UNIVERSITI TEKNOLOGI MARA

ECS 358
CIVIL ENGINEERING DESIGN PROJECT

REINFORCED CONCRETE BUILDING DESIGN PROJECT

PROJECT BASED LEARNING (CASE STUDY)

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DIPLOMA

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Alhamdulillah, first of all I would like to thank to God as finally I as finally I able to finish the final year project report that have been given. A big thank you to my Civil Engineering Design Project ECS358 lecturer's Sir Ahmad Idzwan, Sir Mohd Firdaus and Panel En. Mohd Irahaj because without their guide and knowledge, this final year project cannot be done or finish properly like this. They always give us support and new knowledge to complete this report in purpose to produce a good outcome from the theory has been learned during lecture, presentation and studio class.

Besides that, I also want to say thank to the Cipta Teguh Architect as I used their architectural drawing to completed the task given in the final year project. Without them, I cannot complete this project as I need to refer the architectural drawing as guidance to draw the structural key plan based on the architectural drawing.

Lastly, a million thanks also to my entire classmate of J4EC1105I1 because they always help each other in doing this final year project. They also teach me and gives idea in order to complete the report whether in calculation and also in the report.

Table Of Content

In this project construction of double-storey reinforced concrete building, the Uniform Building by Law (UBBL) , fire safety regulations need to be required in this construction project;

PART II – SUBMISSION OF PLANS FOR APPROVAL

Based on by law clause 3, the plans of the building have to be submitted to the local authority for approval. The requirement of plans shall be deposited at office of local authority together with fees for submission. Other than that, the statement of purpose of the building and need to attached the stamped copy of the site plan approved by the competent planning authority and certified within twelve calendar months preceding the date on which the building plans are deposited unless otherwise exempted under any law relating to planning. All the plan, drawing or calculation of building shall be submitted by a qualified person.

Based on by law clause 10 which plan required, a site plan shows the site of the proposed building together with the lot and also section number of the building and also the street name for the access the site. For floor plan, the plan or drawing need to figured the dimensions of the length and breadth of the building such rooms, walls, door, window and others and also the names and uses of the room. The front. rear and slide elevation need to shows as the level of adjoining footways, verandah and the levels of the proposed counterparts. For elevation part, it has to shows the floor levels.

Based on by law clause 20 where advertisement hoardings, the erection of hoardings or any framing for the display of advertisement that may be imposed by the local authority. Plans or sketch plans of such hoardings or framings shall be submitted in accordance with the requirements of the local authority. The plans must be certified by the person submitting them to the effect that the proposed hoarding can be safely be supported by the structure onto which it is to be constructed and that he accepts full responsibility.

3.1 Summary of design works

From the project design works that have been conducted for this double storey house, I able to draw the structural key plan of ground floor, first floor and roof floor from the architectural drawing. Next, the project schedule were listed all the project activities and the time frame of the project. Next, the soil report which is SI report that have been got from other company, I able to know and calculate the soil bearing to connect with the calculation of design pad footing. Furthermore, I can know how design the main structure using manual calculation. For manual calculation, it must use the steps given such as first need to assume the suitable size for the main structure, then, calculate the main reinforcement, shear reinforcement, deflection and cracking. Other than that, I know how to use Prokon based on the manual design calculation by transfer the initial data to the software. Furthermore, I know how to rate the material after calculate the weight of material used in every main structure in taking off sheet by using some online references. From the other side, I have experienced fail in design the main structure at the deflection but it is easy to overcome by switching the suitable size of diameter bar or link spacing. Finally for the upcoming years, I able to use all the knowledge of design works adapt with the real project construction. It teach a lot or built more knowledge to determine the problem and handle it professionally in design works. Once the design fail at deflection or cracking it not effect other work, I able to know how to change the material such as suitable diameter or link and spacing until it not fail.

3.2 Recommendations/reflections

At this moment, it is recommended the design of works of main structure using the Prokon software because it is very accurate. Furthermore, it takes shortest time to finish the design calculation, rather than manual calculation need design using the formula given by hand and calculator. Besides, the software also improves a lot in design process. It is more easy for design the main structure using the software. Other than that, it also able to detect the failure in design the main structure. The manual calculation also good for educational purpose so the student can gain more knowledge and compare it with software. In conclusion, to design the main structure are easy, helpful and accurate by using software. It gives a lot of benefit in design work than the manual design calculation.