ECS 358
CIVIL ENGINEERING DESIGN PROJECT

REINFORCED CONCRETE BUILDING DESIGN PROJECT

PROJECT BASED LEARNING (CASE STUDY)

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1.1.1 REQUIREMENTS OF BUILDING BY LAW, FIRE SAFETY REGULATIONS

A good building design is intended to fulfil all the specifications necessary for the buildings could be used once the project has done. The spaces in a building provide an appropriate space for the activity and satisfactory of the occupants. For this case, double storey terrace house needs to be constructed so the space of living room, bedroom, bathroom, kitchen and etc. For example, typically living would make a big space for more occupants compare to the bedroom space. A project construction should provide a comfort and safe building for occupants. In Malaysia, there are standards, requirements and guidelines need to follow, Malaysia has an established building code called as Uniform Building By Laws 1984 (UBBL) which is executed by the local authorities could be used any construction building types in the local authorities area. UBBL is created to consolidate various laws in one document under Town Board Enactments FMS Cap 137.

UBBL is a subsidiary law under the Street Drainage and Building Act 1974 (Act 133) and a building code which provides the requirements or standards of uniformity in the construction of street, drainage and building in local authorities areas. In this building code, there have 9 parts which include preliminary, submission of plans for approval, space, light and ventilation, temporary works in connection with building operations, structural requirements, constructional requirements, fire requirements, fire alarms, fire detection, fire extinguishment and fire lighting access and lastly is miscellaneous.

There are some advantages of UBBL such as to create a uniform standard in Malaysia's construction. Next, it is to control the layout and construction of buildings and besides that, it could save the cost application, processing and approval of building developments. It provides safety and precaution for the fire safety regulations and compartmentation. Also, UBBL provides the responsibility or role of a person on project site. There are some disadvantages of UBBL such as normally the urban areas would not consider the uniformity standards and difficult to interpret laws that has been established. Next, there are certain laws need to update from time to time because of the improvements of building technologies. There are some these parts used for this project:

SUMMARY OF DESIGN WORKS

As I can conclude, it is very essential to design the structural member of a building like this double storey terrace house with a correct procedure like first and foremost need to know the materials specifications and grade. Also, UBBL requires the safety of the house to make sure all follow one standard that has been created. The safety of the house is more secured because follows the requirement from the UBBL

After that, the proper design layout of the house such as the architectural drawing and structural key plan of each floor. Then, identify the slab, beam, column, pad footing and also staircase need to design for this subject. Also, beam design is as rectangular section compare to flange section. It is because the beam structure caters the small load so no need to design as flange. Before design the structural members, analysis need to be done first. Design is the most critical part because it is need to check whether the main reinforcement, shear reinforcement, cracking and deflection is pass or not. The checking is to ensure the structure can resist the load and ensure the users of the house comfortable and safe. From the checking, the reinforcements and spacing will be determined and the maximum force caters by the structure also will be determined. Next, the estimated amount cost will be knew from the bill of quantities and before that need to prepare the Taking Off for each structure designed.

Also, from the comparison of Prokon and manual calculation, the value might be differentbecause of manual calculation follows the Eurocode Standard and British Standard while Prokon follows Eurocode only.

From this course, I learnt how to read the soil details from the site investigation report (SI report) and design each of the structure. Also, the standard need to be standardize to make sure all the calculations values same.

Also, for this subject, I think it is not suitable to conduct online because it need the detail of explanation from a lecturer to make their students more understand for this course. This course also has too many calculations so students might not understand each of the explanation during live class.It must be face to face in the university between the lecture and student. Therefore, students need to find other actions such as ask for help from a friend to teach until understand the subtopic.