UNIVERSITI TEKNOLOGI MARA

ECS 358
CIVIL ENGINEERING DESIGN PROJECT

REINFORCED CONCRETE BUILDING DESIGN PROJECT

MUHAMMAD SOLLEHUDDIN BIN ABD MUTALIB
(2017207644)

DIPLOMA

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AKNOWLEDGEMENT

First and foremost, I would like to thank Allah S.W.T for his mercy and guidance as I manage to complete this technical report for subject Civil Engineering Design Project (ECS358) that include Project 1 – Reinforced Concrete Building Design Project and Project 2 – Project Based Learning (Case Study) successfully. In the midst of global pandemic and movement control order (MCO) since 18 March 2020, student of UiTM need to undergo Open and Distance Learning (ODL) **said all academic activities conducted are a blend of asynchronous (without real-time interaction) and synchronous (real-time interaction) online learning, it is one of the heaviest challenges in order to complete this project within the time given. A special appreciation to my lecturer, Sir Ahmad Izwan bin Yusuf, who support his student and giving endless lessons during classes in both face to face sessions and during online learning sessions and for support and guidance on how to complete this project in order to produce a good outcome from what has been learned in class.** Moreover, I would like to express my heartfelt thanks to my family who always try their best to encourage and support me during the period of completing this project. As this project is almost fully done in student's house or hometown during the movement control order (MCO), environment at the house must be comfortable and less distracted for student because it is different from environment and surrounding at the campus and classroom. In addition, I really grateful to all my friends and seniors that always available regarding my curiosity and questions regarding this project. This project cannot be complete without the support and guidance from people surrounded me during this period of project.

1.0 PROJECT 1 – REINFORCED CONCRETE BUILDING DESIGN PROJECT

1.1 INTRODUCTION

1.1.1 REQUIREMENTS OF BUILDING BY-LAW AND FIRE SAFETY REGULATION

UBBL is Uniform Building By-Law which is published document that is used as a references for safety standard and is emphasized by the government. UBBL is a legislative code that prescribes and regulates the design and the construction of building in Malaysia.

UBBL are building regulations. Malaysia's building regulations are based on the Street, Drainage and Building Act 1974 (Act 133) and its subsidiary, The UBBL 1984 updated as Uniform Building By law 2006. These legal instruments stipulate the procedures for building plans approval and other development and construction control such as the Fire Service Department prescribes requirements for fire-fighting services through Part VII and Part VIII of the UBBL. Some Malaysian Standards are already made mandatory under specific legislation.

Part II - *Submission of plans for approval*

1. Submission of plans for approval

(1) All plans for buildings submitted to the local authority for approval under section 8 of the Ordinance shall:

(a) be deposited at the office of the local authority together with the fees prescribed for the submission of such plans in accordance with the First Schedule to these By-laws;

(b) bear upon them a statement showing for what purpose the building, for which the plans are submitted, is to be erected and used;

(c) bear the certification of the qualified persons on these plans together with Form A as set out in the Second Schedule to these By-laws for which they are respectively responsible; and

(d) have attached thereto a stamped copy of the relevant 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.

2.0 CONCLUSION

2.1 SUMMARY OF DESIGN WORKS

This report analyzed Project 1: Reinforced concrete building design project). To summarize, the design project started with finding a set of architectural drawing from any company or project.

Moreover, the project schedule was prepared by using Microsoft Project. It is important to use this software in order to obtain the accurate end work progress for the project. The software also important in order to list down the work progress and specific time decided in order to accomplish specific work. This software also preventing extended time of the project which could affect the cost for the whole project that need to spend if there would be a delayed work progress. All holidays need to take into account as the project will not be conduct at certain day such as Eid Mubarak and Labour Day. For this project, the suggested or approximate timeline is started is 30th March 2021 and finish 12th November 2021. The duration of the project was 164 days which from preliminary works to documentation which is documentation to the authorities and hand over to the project contract to client.

Then, structural key plans and load distribution diagram is produced from this architectural drawing by using AutoCAD as it is one of the many skills that must be learn as a civil engineering student. Then, performance of structural analysis and design calculations of structural elements which is slab, simply supported beam, continuous beam, continuous column, pad footing and staircase for the building according to the requirements of Eurocode 2 is done by using manual calculation and software which is PROKON and Spreadsheet. Manual calculation was done in design sheets provided, for the previous semester, students use ESTEEM instead of PROKON, however during online learning, students unable to use computer installed with ESTEEM at computer lab in UiTM Pasir Gudang, alternatively student were able to use Prokon for this educational purpose

2.2 RECOMMENDATIONS/ REFLECTIONS

In this technical report, there are a few ways that can be done in order to improve the effectiveness of this project. First of all, this project is better to be conducted through face to face lesson with lecturer compare to online learning as student and lecturer need to struggle a lot more compare to previous study plan due to inflexible surrounding. Next, design calculations of structural elements for manual and design software might be different in comparison that might be cause from misunderstanding or error in fill up the input and data needed. Learn to use a new software is also one of the difficulties that faced by student during completing this project. However, with patience and guidance from lecturer in providing the user guide has ease the understanding of the design software which is PROKON and Spreadsheet. Then, with several of materials type and size used for the project, there might be error or confusion in determining the exact amount of the materials used. Other than that, time management in completing this project must be manage properly as it has a lot of task to carry out, by completing every task per week might be the best way to avoid procrastinating so that student will not wait until eleventh hour to completing all the tasks and assignments. Hopefully, this design project will conducted in physical class for student in next semester as it is fairly difficult through online learning with limited resources as computer lab in faculty has computer with internet and installed software for this design project purpose such as AutoCAD and ESTEEM, gratefully we have done project schedule in Microsoft Project during previous physical class before the movement control order (MCO) as the software is only for limited purpose