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UNIVERSITI
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MARA

**ECS 358
CIVIL ENGINEERING DESIGN PROJECT**

**REINFORCED CONCRETE BUILDING
DESIGN PROJECT**

**PROJECT BASED LEARNING
(CASE STUDY)**

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TABLE OF CONTENT

CONTENT	PAGE
1. PROJECT 1 – REINFORCED CONCRETE BUILDING DESIGN PROJECT	
1.1 Introduction	
1.1.1. Requirements of building-by-law , fire safety regulations	
1.1.2. Architecture drawings of the building with TITLE BLOCK	
1.1.3. Project background / details	
1.1.4. Design parameters for every element (Materials strength , grades)	
1.1.5. Weights of materials used in the building	
1.2 Project Schedule	
1.2.1. List of activities and time frame	
1.2.2. Project schedule using Microsoft Project	
1.3 Design of Structural Elements (Manual Design)	
1.3.1 Structural Key Plans of the building with TITLE BLOCK	
1.3.2 Slab design calculations and detailing (AutoCAD with TITLE BLOCK)	
1.3.3 Simply supported & continuous beam design calculations and detailing (AutoCAD with TITLE BLOCK)	
1.3.4 Column design calculations and detailing (AutoCAD with TITLE BLOCK)	
1.3.5 Soil bearing capacity and footing size estimation (Solution for Case Study 1)	
1.3.6 Pad footing design calculations and detailing (AutoCAD with TITLE BLOCK)	
1.3.7 Staircase design calculations and detailing (AutoCAD with TITLE BLOCK)	

PROJECT 1 – REINFORCED CONCRETE BUILDING DESIGN PROJECT

1.1 Introduction

1.1.1 Requirements of building by law & fire safety regulations

Getting started Building a structure, no matter how large or tiny, has always been fraught with a slew of questions. The most crucial question among the many that cross one's thoughts is how to design and what aspects one should keep in mind while developing. Distinct people have different needs in terms of design. The design chosen by one person may have an impact on those who live nearby. If it has a negative impact, one of the numerous circumstances that will emerge is frequent brawls and clashes with neighbours and community members. There should be certain minimum requirements for building designs. With this necessity for standardisation in mind, it was necessary to create a set of rules and regulations that should be followed.

The rules and regulations set forth by the relevant government bodies and modified from time to time are known as building bye laws. These rules tell us what to build, how to build it, and where to build it. All government and non-government agencies operate in accordance with the applicable building codes. Any building plan submitted to the authorities that does not comply with the authority's building codes is rejected. Non-compliance is penalised, whereas compliance is required by law. Because these laws and regulations apply to everyone, they aid in the creation of a more uniform development. The Building by Law paper may be lengthy to read, but it is worthwhile to do so in order to avoid future complications.

The Structure Any person or organisation planning to construct a structure should strictly adhere to the bylaws. Building bylaws aid in the creation of a well-planned development. Aside from individual plot or land owners, buyers of under construction as well as completed property should have a solid understanding of the local building codes. This will assist buyers in questioning the developer's construction of structures. The standards for residential and group housing buildings include elements such as setback width, percentage of green space, built-up percentage, distance between two buildings, building height, necessary services requirements, and distance from high-tension electrical lines, among other things.

3.1 SUMMARY OF DESIGN WORKS

To sum up to this project, I have learned methods of manual calculation on structural member in the building. This report consists of both manual and software calculation by using Prokon 4.0 and the value are based on my own assumptions. All the calculation in this report are referred to the Eurocode and The National Annex to make sure that the design criteria are referred to the method of calculation before proceeding to real construction work.

But before we design a building, a house or any construction, we need to know all the details of the architectural drawings. This is because we need to follow the specifications that the architect has made. Then, we need to allocate the location of the structures such as beam, columns, loads on all slabs. After that, we can start selecting the critical structure of our project and start the designing the structure by considering the selected structure such as slabs that attached to the critical beam and columns that attached with the critical beam. Detailing are important in construction sites in order to build an exact building as told in the contract document by supervision of contractor and other expertise. Any errors in the details will lead to structure failure and unfortunate event to occur on site during construction work.

As for case study, it is important to analyse the soil bearing capacity on the supposed building in order to build the building. This has to be taken into account so that we can build the suitable design of pad footing in the soil condition site investigation. The data that have been calculated need to re-check to reduce the error from software or from manual calculation itself