UNIVERSITI TEKNOLOGI MARA

ECS 358
CIVIL ENGINEERING DESIGN PROJECT

REINFORCED CONCRETE BUILDING DESIGN PROJECT & PROJECT BASED LEARNING (CASE STUDY)

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ACKNOLEDGEEMENT

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1.1.Introduction

The project's basic information will be included in the introductory section. This section will give an overview of the project, including background information and key data that will be used throughout the project. This section covers numerous parts, including the Uniform Building of Requirements by Law (UBBL), an architectural drawing of the project, which is a two-story house, the project's background details, design parameters, and the weight of the materials used in the project.

The UBBL is essentially the norm that must be followed while designing a residential project. It contains the house standards used across Malaysia. As a result, every design must refer to this UBBL to ensure that the building or project produced meets the requirements mentioned and standardised by the requirements, as well as the safety and comfort of the building's users.

The project's architectural drawing follows. It is essential to include it in every project. It can be used as a visual reference to see the house based on the drawing. Aside from the drawing, the structure's specifics can be obtained for use in the design. The floor plan, elevation view, cross section, and roof plan are all included in the architectural drawing. This is where you get the dimensions of the structural pieces.

The third item in this section is the project's background information. The purpose of the project is to build a two-story house. This section will go through the project in greater detail, including the sort of project, the items included in the project, the project's location, the people involved, and so on. In this section, all of the project's features and background will be presented in greater detail.

The design parameters employed are the fourth part in this introduction. Because the overall goal of this project is to design the project in terms of its structural elements, the design criteria are critical to understand as a starting point for the design stage. It's essentially the value that the design is based on. The value is calculated using Eurocode 2 and BS 1990 as the reference standards.

The weight of the materials used is the fifth factor. This is also necessary for the design. The value is also depends on the standards used, which are Eurocode 2 and British Standard 1990. These values are determined by examining the structural and material conditions, and then referring to a standard reference to establish the weight value for that particular piece.

3.1 Summary of design works

This report is based on Project 1: Reinforced concrete building design, as well as Project 2: Project Based Learning, the flexible pavement design case study. This proposal is based on a two-story house with architectural drawings provided by a civil engineering consultant. This house has four bedrooms, three bathrooms, one living room, a kitchen, a store, and a porch, according to the architectural drawing. In addition, the Site Investigation report is being examined in order to determine the project's soil bearing capability.

First and foremost, the project begins with the determination and preparation of the project's timetable. Microsoft Project is being used to create the timetable. The activities are presented in order of their duration and precedence. Hens, Microsoft Project will generate the schedule flow in visual form, such as a Gantt chart and a Network diagram, automatically. The critical path of the schedule is identified using the network diagram. As a result, the total flow of activities is completed.

After that, the designing stage begins. The structural plan is being drawn up using the architectural drawing that has been provided. As a result, the structural elements that will be designed are determined ahead of time. By reference to the structural drawing, the slab is identified. Aside from that, the simple and critical beams are being determined. The continuous column and the essential column's pad footing are being determined. The stairwell is being located.

The dimensions and weightage for the designed are derived from the 319 BS 1990 and BS1991 standards. From there, the design process is based on Eurocode 2 as the primary reference for developing reinforced concrete structures. The reinforcement of the structure is decided by referring to the final appendix, the area of sections. As a result, the structure's details are drawn in AutoCAD.

After the manual calculations are completed, the software creates the design. Spreadsheet is used for the stairwell whereas PROKON is used for the slab, beam, column, and pad footing. The required construction details are entered into the software, after which the software generates the design based on Eurocode 2. As a