ECS358

CIVIL ENGINEERING DESIGN PROJECT

TECHNICAL REPORT

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ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and Most Merciful.

All praises to Allah for the accomplishment of this writing. I would like to express my heartfelt gratitude to all those who contributed to the successful completion of my final year project, *Reinforced Concrete Building Design Project (ECS358)*.

First and foremost, I would like to extend my sincerest thanks to my lecturer, Sir Johan Ibrahim, whose vast knowledge, expertise, and unwavering support have been invaluable throughout this project. His constructive feedback, constant encouragement, and insightful suggestions have greatly shaped the direction of my work and helped me overcome the challenges I faced. I am deeply grateful for his dedication and patience in guiding me through this process.

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This project has been a significant learning experience, and I hope the outcomes will contribute positively to my future endeavors.

ABID AQIL BIN HAMDAN NOR
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The Uniform Building By-Law (UBBL) is an officially published document emphasized by the federal government as a mandatory benchmark for safety standards. It serves as a statutory code that prescribes and regulates the design and construction practices in Malaysia.

The UBBL is Malaysia's building code, established under the 1974 Street, Drainage, and Building Act (Act 133) and its subsidiary legislation, the Uniform Building By-Laws 1984. It was later revised as the Uniform Building By-Laws 2006 (UBBL 1984), incorporating all amendments up to May 2006. This legal framework governs the approval of building plans and outlines planning and construction management procedures. It also specifies requirements for firefighting services, as prescribed by the Fire Service Department, under Part VII and Part VIII of the UBBL. Certain building requirements unique to Malaysia are now made compulsory under this 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 under 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 proceeding the date on which the building plans are deposited unless otherwise exempted under any law relating to planning.

2. Every plan, drawing or calculation in respect of any building shall be submitted by a qualified person.

3. Return of plan

1) Every plan, drawing or calculation in respect of any building shall be submitted by a qualified person.

2) A local authority shall accept any return of plan if the plan resubmits together with certificate from the relevant competent authority.

4. Supervision of work

Where under these Bylaws any plan, drawing or calculation concerning any building is required to be submitted by qualified person, no erection or continued erection of that

Before the start of the semester, students are required to find a sample of architectural drawings to be used as a reference for the design project. From these architectural drawings, structural key plans are created, which include the ground floor layout, first floor layout, and roof layout. These plans help define the locations of structural components in the reinforced concrete building, such as the reinforced concrete slab, beams, and columns.

Once the structural key plans are drawn, manual designs are carried out for each structural member to evaluate the required dimensions and specifications, ensuring that the structures can safely sustain the loads imposed on them. The results obtained from the manual design calculations are then compared with the outputs from the ESTEEM software, allowing for verification and refinement of the design.

Following this, the total project cost is estimated using the Bill of Quantities (BQ) method. In this method, a detailed take-off is performed for each structural component to calculate the number of materials needed for constructing the reinforced concrete building. These materials include reinforcement bars, concrete mix, and sawn timber. The quantities of materials from the take-off are then summed and multiplied by the respective unit prices from the Schedule of Rates provided by Jabatan Kerja Raya Malaysia to determine the total cost of materials for the project.