



اَوْنُوْ سِيْتِي تِيْكَوْ لُوْ كِي مَارَا
UNIVERSITI
TEKNOLOGI
MARA

ECS358
CIVIL ENGINEERING DESIGN PROJECT
TECHNICAL REPORT

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2. PROJECT 2 - PROJECT BASED LEARNING

2.1. Soil Bearing Capacity or Flexible pavement design (Solution for PBL)

3. CONCLUSION

3.1. Summary of design works

3.2. Consequences to safety, construction practicality, costing and economical aspects of structure/ building/ project

3.3. Recommendations/reflections

3.4. References

1.1.1. REQUIREMENT OF BUILDING BY LAW

2. Interpretation.

In these By-laws, unless the context otherwise requires-- "Act"

means the Street, Drainage and Building Act 1974;

"advertisement hoarding" means any frame, hoarding, board, wall, bar, pillar, post, wire, or any

combination of these, or any erection of any kind, or any surface or space used for the display of

trade, business or professional advertisements;

"aggregate" means any material other than cement and water used in the making of concrete which does not contain additions or admixtures;

"alterations" include additions and extensions;

"approved" means approved by the local authority;

"approved plan" means a plan for a building approved by the local authority in accordance with these

By-laws;

"architect" means any person who is registered as an architect under any law relating to the registration of architects and who under that law is allowed to practise or carry on business as an architect;

"ASHRE" means the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.;

"balcony" means any stage, platform, oriel window or other similar structure projecting outwards from

the wall of a building and supported by brackets or cantilevered;

"base" in relation to a wall or pier means—

(a) the underside of the course immediately above the footings, if any, or in the case of wall carried by a beam, above the beam; and

(b) in any other case the bottom of such wall or pier;

"basement" means any storey or storeys of a building which is or are at a level lower than the ground storey;

3.1 SUMMARY OF DESIGN WORKS

In conclusion, the imperative nature of creating detailed architectural drawings before commencing construction cannot be overstated. As part of their final year project, students are tasked with not only sourcing architectural drawings for a single-story house but also developing a comprehensive project timeline. Moreover, they are required to craft key plans for each level, adhering to the referenced Eurocode 2 standard. It is crucial to meticulously locate and assess the designated regions for reinforcement in the chosen structural components to ensure structural integrity and prevent any potential failures.

The subsequent step involves the calculation of the Bill of Quantities through the taking-off approach. However, the intricacies of structural calculations necessitate a comparison between manual calculations and software-generated results, particularly using tools like ESTEEM. Notably, ESTEEM utilizes distinct formulas, such as Wood & Amer's formula, which can yield variations in results. The examination of these differences is paramount, as demonstrated in the preceding slide, revealing discrepancies exceeding 20% in certain instances. This emphasizes the importance of validating manual calculations against software outputs to enhance accuracy in structural assessments.

Lastly, the successful completion of the project assignment relies on the assimilation and application of knowledge acquired from courses like Civil Engineering Design Project (ECS 358), Structural Concrete and Steel Design (ECS 338), and Civil Engineering Quantities and Estimation (ECM366). The benefits derived from these studies extend beyond academic pursuits, serving as valuable assets during industrial training or within the professional work environment. This holistic approach ensures that students not only fulfill academic requirements but also equip themselves with practical skills essential for their future endeavors in the field of civil engineering.