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ECS358
CIVIL ENGINEERING DESIGN PROJECT
TECHNICAL REPORT

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I exerted my utmost to meet the given deadline, marking my inaugural attempt at independently managing a project from initiation to completion within a 16-week timeframe. The success achieved in this endeavour was made possible by the unwavering support and assistance from various individuals, including my groupmates, friends, and lecturers, for whom I feel truly blessed.

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Building by-laws and fire safety regulations are indispensable prerequisites that must be adhered to in every construction endeavour. In Malaysia, the Fire Services Act of 1988 delineates the legal requisites for ensuring fire safety in buildings. This legislation furnishes guidelines pertaining to fire safety organization, the mitigation of fire hazards, issuance of fire certificates, and other related matters.

In conjunction with the Fire Services Act of 1988, the Uniform Building By-Laws stands as another pivotal legal obligation in Malaysian construction projects. These by-laws constitute a prescriptive building code that articulates rules and regulations governing its application. Compliance with this code is mandated by law, offering predetermined directives for building design, construction, and maintenance.

Ensuring conformity with building by-laws and fire safety regulations necessitates the establishment of a robust ethical culture within an organization. This involves formulating a code of conduct elucidating the ethical standards anticipated from all employees and contractors. The dissemination of this code of conduct to all personnel, coupled with consistent training and monitoring, is crucial for its effective enforcement. Furthermore, establishing minimum requirements for the structural stability and integrity of buildings, encompassing foundations, walls, roofs, and other structural elements, is imperative.

Additionally, the implementation of a system of checks and balances becomes paramount to guaranteeing that all project-related decisions are conducted ethically and transparently. This can be achieved by constituting an independent oversight committee tasked with monitoring the project and ensuring decisions align with the established code of conduct. Parameters such as maximum floor area, lot coverage, and building height must be explicitly defined, while standards for fire-resistant building materials and construction methods, along with fire resistance ratings for walls, floors, and roofs, should be established.

Lastly, instituting a system of reporting and accountability is crucial. This involves creating an anonymous hotline for employees and contractors to report ethical violations or professional misconduct. The hotline should be monitored by an independent third party to ensure thorough investigation and appropriate resolution of all reports. Mandating the development and posting of evacuation plans, along with specifying procedures for fire drills and emergency evacuations, contributes to comprehensive safety measures.

Compliance with building by-laws and fire safety regulations is pivotal in crafting secure and compliant structures that safeguard occupants and the broader community. This typically

In conclusion, the widespread utilization of reinforced concrete is evident in the construction industry, where modern buildings heavily rely on it to enhance structural strength. The pivotal role of Civil Engineers in designing buildings cannot be overstated, as any errors in their decisions may lead to building failures or reduced longevity.

The findings of this project highlight the superior accuracy of structural designs generated by Prokon compared to manual calculations. Prokon's precision is attributed to the meticulous details and programming, whereas manual calculations are prone to errors due to the lack of comprehensive information in the design process.

Furthermore, the project allowed me to proficiently manage activity details, timelines, and project schedules using the Work Breakdown Structure (WBS) in Microsoft Project. The Gantt Chart effectively organized activities and timelines, while the Network Diagram facilitated detailed scheduling based on resources and time duration.

Additionally, I acquired skills in estimating project costs using manual calculations, referring to notes from ECM366. Emphasis was placed on considering the specific year and area's price rates, often referring to Jabatan Kerja Raya (JKR) and CIDB Price Rates for Malaysia Standard pricing.

The project also equipped me with the ability to propose Soil Bearing Capacity and Flexible Pavement Design. The Soil Bearing Capacity played a crucial role in determining pad footing sizes, preventing structural failures. Calculating Flexible Pavement Design based on Arahan Teknik Jalan 5/85 (Pindaan 2013) (DK7) allowed for accurate designation of road pavement to meet specific needs.

Lastly, the comprehensive scope of work involved in constructing buildings, from inception to completion, became evident. The challenges faced by Civil Engineers extend beyond the construction site, encompassing responsibilities for building strength, material selection, and ensuring overall safety for occupants. In summary, this project provided valuable insights into the multifaceted tasks and challenges of a Civil Engineer in both on-site and off-site contexts.