UNIVERSITI TEKNOLOGI MARA

ECS358

CIVIL ENGINEERING DESIGN PROJECT

TECHNICAL REPORT

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Malaysia's Uniform Building-By Laws (UBBL) are a set of legislation designed to guarantee the public's safety, health, and welfare during the construction and maintenance of structures. Furthermore, the UBBL provides a key foundation for architects, engineers, contractors, and property developers by establishing national standards for building design and construction.

There are several key components on Uniform Building-By Laws (UBBL) service which are standardized guidelines, safety priority, regulatory adaptability, consistent development, ongoing updates, professional guidance and community safety focus.

Although the primary goal of safety is to guarantee that the building satisfies all safety requirements, including enhancing structural integrity, fire precautions, and consumer accessibility, standardized guidelines concentrate on streamlining building procedures for architects, engineers, builders, and developers in order to comply with legal and safety standards. Consistent development is in charge of promoting construction uniformity to guarantee controlled, standardized building design and function. Regulatory adaptability is the sk of developing framework to accommodate technological advancements, environmental concerns, and safety laws for sustainable construction techniques.

Regular updates are necessary to stay current with safety regulations, best practices, and technology advancements. Professional guidance serves as a guide for construction professionals, offering them precise instructions on how to design, construct, and maintain structures while adhering to safety and legal requirements. Lastly, raising safety standards, lowering hazards, and giving priority to environmental stability and occupant well-being are all under the purview of community safety emphasis.

The main goal of Uniform Building-By Laws (UBBL) was to standardize building laws throughout Malaysia, encouraging consistency in safety standards and construction techniques. The UBBL has been revised multiple times throughout the years to address developing issues while also incorporating current building techniques and materials. There are several key provisions of UBBL that have been revision such as general building requirements, structural safety, fire safety, accessibility, sanitation and hygiene, energy efficiency and sustainability also electrical and mechanical installations:

In summary, all of the structural element calculations have been obtained and validated satisfactorily, meeting the requirements for deflection, bending, shear, and cracking. All design elements are anticipated to be stable and to have a lifespan of roughly fifty years. The safety of the occupants is taken into consideration because the primary goal of the design is to keep the building in excellent condition with no suspected problems and to sustain the greatest load it can withstand. Because of this, each structural member's design parts are sufficient to withstand failure and are balanced in terms of reinforcing.

Additionally, places in the concrete that are vulnerable to tension, such the bottom of beams, are frequently reinforced. Therefore, the use of reinforced concrete in this project guarantees the structure's stability and resistance to strain and compression, enabling it to endure the weather for a longer period of time and with higher durability. The UBBL is incorporated in this design because fire rules require that the building structure withstand heat for at least sixty minutes before sustaining damage. Additionally, the use of nominal cover helps the construction to leave a gap between the closest reinforcing bar and the exposed concrete structure.

As a consequence, reinforced concrete is a common material in the country because it is required less maintenance and may be used in a wide array of applications. All design work went to the Malaysia National Annex for validation of implications to the building design. This allows engineers to establish standards in order to avoid a wide range of solutions that could lead to an increase in the number of challenges caused by different ways.

Structural design is crucial in civil engineering because it secures the structure's safety. Structural design provides all of the required information regarding foundations, stairs, slabs, beams, columns, and material quality in order to ensure that any structures constructed meet the safety requirements. Structural engineers must consider aesthetics while constructing structures that can endure pressures and stresses without failure. A construction that does not consider structural design is bound to fail. As it turns out, structural design plays a major part in all building projects since it directly influences the durability and safety of the structures