



**UNIVERS  
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**ECS358  
CIVIL ENGINEERING DESIGN PROJECT  
TECHNICAL REPORT**

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Building-by-law and fire safety regulations is one of the most important things that need to be emphasized and considered in doing construction work such as house construction. In terms of Uniform Building By-Law 1984 (UBBL 1984), it is known as one of the law codes that is established by local authorities or national governments for the terms of construction, renovation, and maintenance of buildings. This is as one of the safety considerations for the occupants and the environment. Also, the Uniform Building By-Law 1984 (UBBL 1984) is need as it is to control various elements of construction, including parameters such as building area, height, and architectural designs by managing it to make sure it is organized and sustainable manner. By following this Uniform Building By-Law 1984 (UBBL 1984), it may prevent from environmental pollution and certain unsafe conditions such as noise pollution, fire hazards and conditions that can be threatened. There are also several purposes of this building-by-laws. For instance, in terms of safety, it is sees as safeguarding the people who works at the construction and for the structure itself such as when handle with material that have chemical exposure which may cause harm, wearing (PPE) Personal Protective Equipment is a must as one of the laws in Uniform Building By-Law 1984 (UBBL 1984). Not only that, by developing these laws, it ensures that the new constructions parallel with the broader urban planning goals and it is also will give an efficiency and effectiveness construction process as it gives a pre-planning of the building activities. There are also several requirements of Uniform Building By-Law 1984 (UBBL 1984) such as height of building, lighting, and ventilation, building site and building materials:

Height of building: In UBBL, it is stated that the determination of height of the building is based on street width that is to maintain urban aesthetics and safety.

Lighting and ventilation: Based on the building's laws, it is must to have windows and ventilators to make sure there are natural ventilation at the room.

Building site: The building also cannot be constructed at the locations that has been filled up with any matter impregnated with animal or vegetable matter until the entire ground surface or site of such building has been rendered or become innocuous and has been covered with a layer of hill earth, hardcore, clinker, or ash rammed solid to a thickness of at least 0.305m. The land upon which any structure is to be constructed must be thoroughly cleaned of turf and other plant debris.

Building materials: 1) Any material is used, regardless of whether it is for home construction, installation of fittings, the execution of works or excavations on site shall be the one that is equivalent for nature, and it is quality. 2) The use of any

In conclusion, every aspect of a project must be taken into account to ensure its success, including cost, economy, construction practicality, and safety. For this reason, from the project's inception until its completion, architects, engineers, contractors, and project managers will work together to brainstorm solutions for any issues that may arise.

First and foremost, the design stage is crucial to ensuring the building's safety. For example, since each structural part will bear the weight of the building, its size must be sufficient. Inadequate planning may result in structural breakdowns that jeopardize the safety of the buildings' inhabitants as well as those nearby. In terms of upkeep, excessive maintenance costs will result from inadequate structural designation or from engineers designing a building only on their own judgment without first contacting the client. Due to issues arising from the breakdown, such as an increase in the cost of repair, this may result in financial losses. To achieve the safety standard, it also entails rework, material waste, and remedial actions. The design process is essential in ensuring that the client's aesthetic preferences are fulfilled and that the building fulfills their desires. Inadequate design decisions can produce an ugly structure that might not be beneficial to the building.

Next, each structural member's size needs to pass all checks in terms of construction practicality to ensure that it can support the building's dead and live loads. Additionally, the engineer must ensure that the chosen structural member type is the most appropriate for the project type. For instance, it is more advisable to employ a deep foundation for high-rise structures or weak soil types. Aside from that, a site study is a crucial step that must be taken before beginning any project. This is since to ensure that the project can be built at the intended site, the type of soil there needs to be identified. Determining any obstacles that might arise before to, during, or following the project will also be helpful. For example, the ease of access for construction materials and equipment to the site, the location's natural disaster history, and the site's circumstances.