ECS 358
CIVIL ENGINEERING DESIGN PROJECT

REINFORCED CONCRETE BUILDING DESIGN PROJECT
&
PROJECT BASED LEARNING
(CASE STUDY)

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1.1 INTRODUCTION

1.1.1 Requirement of building – by – law, fire safety regulations

It is in our nature to have law in this world. Everything we do is governed by law; for example, when driving on a road, there is a speed limit that must be followed for the driver's safety and the safety of others. The same is true for any building in which we live. Every structure element must fulfil the standards of the Uniform Building By Law 1984. (UBBL). The main reason we use this law is to ensure public safety and environmental protection, as well as to standardise all building work. As a result, progress on the job site will be much easier. As a result, the reinforced concrete double storey house design project that was created must adhere to the UBBL and fire safety regulations in order for the people who live in any building to feel safe and comfortable.

As a result, based on the UBBL standard value, the characteristics of this house project are as follows: first, the width of every habitable room in a residential house must not be less than 2 metres (UBBL, Section 42 paragraph 2). Another relevant section is the kitchen's area and width being less than 4.5 square metres and 1.5 metres, respectively. Furthermore, in Section 43(d), UBBL stated that a bathroom with closet fittings must be at least 2 metres long and 0.75 metres wide. Every double-story terrace house must have a party wall, which is a dividing partition between two adjoining buildings shared by the occupants of each residence. According to Section 86(3) of the UUBL, all party walls must be carried above the upper surface of the roof for a distance of at least 200 millimetres at right angles to such upper surface.

Section 165(3) of the Fire Safety Regulations states that the travel distance from any point in the room to the room door must not exceed 15 metres. Section 227 requires portable extinguishers to be installed in all buildings in accordance with the code of practise. These are some of the examples taken from UBBL 1984 where engineers must follow the law in order to construct a standardised building.

3.1 Summary of design works

As a civil engineering department, we rely on Standards and Codes of Practice to guide us in carrying out our design and workmanship obligations. Standards or Codes of Practice, in effect, assist as a codified version of the cumulative knowledge and technical expertise found in the construction sector. We need a solid understanding of concrete to design reinforced concrete, which is not as simple as we expected.

As we all know, concrete is the most commonly used material in construction compared to steel. As a result, designing reinforced concrete in accordance with the Code of Practice is critical. Furthermore, all construction purposes must adhere to the Malaysian Standard Eurocode Code of Practice. In addition, we must abide by the Uniform Building By Law. If we did not follow the law, our project could suffer in terms of cost, delay, and other factors. Furthermore, designing reinforced concrete is critical because we want to build a building that will be used by the customer. In other words, we as designers must design properly in order to avoid damages and accidents to customers. As civil engineers, it is our responsibility to design all elements that can withstand any hazardous situation such as an earthquake, flash flood, strong wind, and so on.

For the diploma level, we only need to design a static building in which wind action is not used. As a result, as civil engineering students, we must have this fundamental knowledge. By using the standard Code of Practice, all of the construction will be standardised. We will be labelled as unethical engineers if we refuse to follow the Code of Practice.