UNIVERSITI TEKNOLOGI MARA

ECS 358
CIVIL ENGINEERING DESIGN PROJECT

REINFORCED CONCRETE BUILDING DESIGN PROJECT

PROJECT BASED LEARNING (CASE STUDY)

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1.1.1 REQUIREMENTS OF BUILDING-BY-LAW, FIRE SAFETY REGULATIONS

The Uniform Building By Laws Malaysia is a building code which provides minimum requirement and standard for the control and construction of street, drainage and building which has been adopted by every state in West Malaysia. The fire requirements fall under Part VII in the UBBL 1984 which contain clauses correlated to fire safety regulations that need to be followed in order to design a safe project.

For example:

i. *CLAUSE 143. BEAM OR COLUMN*

Any beam or column or structure carrying that are required to be constructed from non-combustible materials need to comply the by-law 142 as to non-combustibility.

ii. *CLAUSE 168. STAIRCASES*

I. Should be wide enough that it can accommodate the highest occupancy load of any one floor discharging into it calculated in accordance with provisions in the seventh schedule in case of escape purposes.

II. The required width shall be clear width between walls but handrails are permitted to a maximum width of 75mm.

III. The required width shall be maintained throughout its length and landing.

iii. *CLAUSE 173. EXIT DOORS*

All exit doors should be able to be opened from inside without having to use keys or other materials for smooth escape in case a fire broke out.

3.1 SUMMARY OF DESIGN WORKS

Table 13 below shows the summary of design works that have been completed which consist of the structural element slab, simply supported and continuous beam, column, pad footing and staircase.

Table 13: Summary Of Design Works

STRUCTURAL ELEMENT	SIZE OF ELEMENT	REINFORCEMENT
Slab	3600mm x 2400mm	H10-300 (262 mm^2)
Simply Supported Beam	250mm x 500mm	2H16 (402 mm^2)
Continuous Beam	250mm x 500mm	2H16 (402 mm^2)
Column	250mm x 250mm	4H16 (804 mm^2)
Pad Footing	3000mm x 3000mm	10H16 (2010 mm^2)
Staircase	Going = 271mm Riser = 170mm	H10-250 (314 mm^2)