UNIVERSITI TEKNOLOGI MARA

ECS 358
CIVIL ENGINEERING DESIGN PROJECT

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

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First of all, praises and thanks to ALLAH SWT for the bless and opportunities that had been showered throughout my process of completing final year project (FYP) even though this semester has a lot of difficulties since students needed to learn and finish up the final year project through online learning. This online learning obviously gave a huge impact towards students as well as all lecturers throughout the world as soon as this pandemic has struck effectively till it became very dangerous. However, the time and all of the hard work that I put diligently in this project was very effective for completing and fulfilling the lesson outcome of this course Civil Engineering Design Project (ECS358). To be frank, I have gained massively in term of experience or knowledge through hardship on researching and requesting an advice from experts such as Sir Hazizi (Studio Lecturer), Dr Lee (Lectures and Video) as well both of my parent as they both are majors in Civil Engineering and are working as Traffic Engineer in their daily life. From the bottom of my heart, I had tried my very best in terms of calculation, drawing as well as researching in order to achieve an excellent result for this semester as this is my last semester for Diploma in Civil Engineering at UiTM Johor branch. As there is a say from Leonardo da Vinci "Learning never exhaust the mind", it made myself spirited and energized every single day while completing this final year project. Obviously, this final year project would not have been possible to be carry out perfectly without the helping hand and assistance of variety individual as well as parties such that my family, lecturers, work mate and I am extremely grateful for that. For that, I would like to extend my sincere thanks to all of them.

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1.1 INTRODUCTION

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

UNIFORM BUILDING BY LAW (UBBL)

In Malaysia, there are law which is called Uniform Building-by-Law that are abased on the Street, Drainage and Building Act. 1974 (Act 133) and its subsidiary, the Uniform Building-by-Law 1984 (UBBL 1984). These legal instruments stipulate the procedures for building plans approval and other means of development and construction control. In other word, all public building in Malaysia, needed to provide each essential that was provided in the law. The objective behind the formulation of Building-by-Laws, 1984 (UBBL), includes to established a standardized building regulation for the whole part of Malaysia and it is applicable to all Local Authorities as well as building professionals. Next, it is to clarify a line of legal responsibilities for buildings with clear definitions on the Principle Submitting Persons thus regulate those sectors such as architectural, structural, health & safety, fire protection capabilities and constructional requirement of buildings including clear references to the approved standards. This standard was supposed to be implemented to all building inside Malaysia as it is valid and engineers must always refer it while construct a building to make it legal in Malaysia. Last but not least, it is to expedite the processing and building approvals and occupation of buildings as the process may be delayed when a group of company or institute intends to ask for approval at the same time which may be difficult to be done in the shortest time.

So, the Act that needed to be referred to in this final year project that was related to the topic is:

PART II: SUBMISSION OF PLANS FOR APPROVAL

- **3. Submission of plans for approval.**

(1) All plans for buildings submitted to the local authority for approval in addition to the requirements of section 70 of the Act shall--

(a) be deposited at the office of the local authority together with the fees prescribed for the submission of such plans in accordance with the First Schedule to these B-laws;

(b) bear upon them a statement showing for what purpose the building for which the plans are submitted is to be erected and used;

(c) bear the certification of the qualified persons on these plans together with Form A as set out in the Second Schedule to these By-laws for which they are respectively responsible; and

(d) have attached thereto a stamped copy of the relevant site plan approved by the competent planning authority and certified within twelve calendar months preceding the date on which

3. CONCLUSION

3.1 SUMMARY OF DESIGN WORKS

As for this summary design works, it could be stated that the manual calculation and software calculation (PROKON) may have plenty of difference as the method of calculation as well as the standards that was used are very different in certain point or equation. As an engineer, both manual and software calculation has been used in order to determine the accuracy of the value or design specification that would be implement throughout the project. From this point, it is defined that by implementing both manual and software calculation, the outcome results may be more accurate and precise and the specification can be taken a bit bigger or higher after comparing the value. This method of comparing has been applied by many experts in engineering as it could help them ensuring the quality as well as the safety of the project. But what is PROKON software actually? What are the advantages of using PROKON?

PROKON is actually defined or known as PROKON Structural Analysis and Design software which is a suite of over forty structural analysis, design and detailing programs. The first PROKON programs were established in the year of 1989, and until today PROKON is currently being used worldwide in over eighty countries. The suite is specializing in nature, but its true hidden specialty lies in the tight integration between analysis, design and detailing programs.

PROKON is actually developed and supported fully by skilled team of professional engineers and it was intended to be use by structural engineer and technician as it would lessens their own burden by a lot. This is because the software helps them to do the calculation, they needed to do instead of spending their time revising and determining the specifications of the project. The software also provides quick, and reliable answers to everyday structural engineering problems such that frame and finite element analysis, steel member design, steel connection design, reinforced and prestressed concrete design, CAD and reinforced concrete detailing, timber member design, masonry design as well as geotechnical analysis.

The advantages of using this software are as shown: -

a) More efficient - it is programmed with building codes from every geographic area
b) Greater flexibility - Last minute changes in design or specification can be solved
c) Fewer flaws - it is being handled by programs while manual is produced by humans.
d) Timesaving - Safe time while doing a checking, so instead of producing another one manual, why not just use software to check the design value.