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UiTM JOHOR KAMPUS PASIR GUDANG

ECS 358

CIVIL ENGINEERING DESIGN PROJECT.

PROJECT BASED LEARNING

FOR REINFORCED CONCRETE PROJECT

ECS358 FULL REPORT

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I hope that my report has fulfill the requirement needed and will be accepted by my lecturer as I have already put all of my efforts in order to finish this project.

INTRODUCTION

1.0 INTRODUCTION TO THE PROJECT

This report is discussing about the designing of double storey terrace house. It involves in manual calculation and Esteem software. This final year project report will includes the manual calculation, Esteem result, architectural drawing,structural drawing, and soil investigation report. The title of the project is"CADANGAN MEMBINA 38 UNIT (26x80) RUMAH TERES 2 TINGKAT DI FASA 3E/2B" located at Lot 1058, Putra Heights, Mukim Damansara, Daerah Petaling, Selangor Darul Ehsan.

This company as a consultant required to design the double storey building which in this cases a a double storey house is choose and the cost of the project is RM365.678,64. Designation session involve in design all structural part in the building such as beam which are include ground floor, first floor, and roof beam. In addition, the consultant team also need to propose a design for slab, column, pad footing and staircase. The failures attain for both manual calculation and esteem design should be recalculate and redesign until it pass. This is too ensure the structure is safe to the client and can cater the load applied. This acquire a lot effort from personnel to complete this project.

According to the building by law, the openable area of windows or area of permanent ventilation shall be not less than 25% of the floor area of the lobby and, if ventilation is by means of openable windows, additional permanent ventilation having a free opening of 464square centimetres shall be provided except that mechanical pressurisation may be provided as an alternative. The minimum height from slab to ceiling is 3m. The standard fire resistance for the structure were also following the Uniform Building By Law Malaysia. Different country has different law for building. As the project is in Malaysia, the information has to follow the Malaysian Law. The standard fire resistance that are used in this project is REI60. REI60 is mean by the structure can hold the fire until 60 minutes. This is important as it can prevent the house totally collapse before the Fireman arrived. This can also delay the fire spread to several structure.

2.0 OBJECTIVE

1. To construct the suitable structure key plan by following architectural drawing.
2. To design the structure by using manual calculation.
3. To design the structure by using Esteem Software.
4. To compare the different between manual calculation value and from Esteem Software value.
5. To determine the duration for the project by using Microsoft Project software.
6. To determine the Bill of Quantity for manual calculation structure.
7. To calculate the cost of materials by using Esteem Bill Quantity.
8. To calculate the total cost for the project by using Microsoft Project software.

20.0 CONCLUSION

Manual calculation was used to determined suitable size of critical structural member size only. This method is not really economical since only one size is applied throughout all related structural members. As an example, if a beam only loaded with minimum load, a critical size of beam will be applied. It is very complicated for an engineer to calculate on each particular beam. Therefore, esteem software was introduced. This is to ease the engineers work and produce more economical and might be cheaper value of particular project.

There are few differences were determined after finished with both manual calculation and esteem result of our RC Design Project. All the differences were affected by few reasons. One of the reasons is in manual calculation, only critical structural members were calculated. While in esteem, the calculations and result were shown precisely through each structural members. This is to helps in produce more economical value of a particular project. Which is only increase the structural members size that are failed. Moreover, all the data such as permanent and variable action were inserted separately depends on the particular member. Other than that, at a first place, the structural drawing were draw manually and simply assign few unnecessary structural members especially column. However, whenever running the Esteem to obtain the results, it showed that few columns are not needed. Which might effect to uplift forces. This contribute in difference result between esteem and manual calculation.

Last but not least, esteem innovation software can give a better result than manual calculation. Esteem have the accurate result and can make the designing session ease.