

**COMPARISON BETWEEN EXPERIMENTAL  
AND NUMERICAL OF RC-WALL WITH  
OPENING**

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**B.Eng (Hons) (Civil)**

**UNIVERSITI TEKNOLOGI MARA**

**2007**

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OF RC-WALL WITH OPENING**

By

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Proposal is submitted as  
the requirement for the degree of  
**Bachelor Engineering (Hons) (Civil)**

**UNIVERSITI TEKNOLOGI MARA**

**APRIL 2007**

## DECLARATION

I, Tajul Fikri bin Salleh Masri, 2003479347 confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others



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## **ACKNOWLEDGEMENT**

In the name of Allah, the most Beneficent, the most Merciful, the most Gracious, the Dispenser of Grace, Salam to Nabi Muhammad S.A.W. His companion and friends as well to all the people' who follow his path.

I would like to express my highest appreciation to my supervisor Mr. Mohd Zaini bin Endut for his advice and guidance during the course of this research report. His invaluable assistance and the constructive criticisms offered have resulted in the completion of this proposal.

Also, thanks to Mdm. Janidah bt. Eman and Mr. Amer Yusoff and others lecturer of UiTM Penang Campus for their kind help in assisting me in this report.

Unforgettable, I would like to thanks also to Mr. Mohd Azmir Abu Bakar for relevant material in this research project.

Last but not least, I would like to express special gratitude to my parents for their persistent support in my studying at UiTM and especially in giving their encouragement and advises. Also to all my colleagues, your helps are really appreciated and will be remembered forever.

## ABSTRACT

The Finite Element Method is a numerical solution technique applicable to a broad range of engineering and physics problems. It is a basic calculation for almost all computer design systems. This Finite Element method addresses the difficulty by dividing the region into small sub regions and used as a basic calculation. Therefore this study was carried out to determine the comparison between manual and finite element analysis of RC-wall with opening.

For the preliminary analysis of RC wall with opening, the study is done based on software (FEM-linear and FEM- nonlinear) and lab work. Therefore the model for this project is a RC wall with openings with 1.2m meter height. The dimension of the RC wall is 1400mm x 1200mm x 75mm where the l/h ratio is 1.0 with target strength of the concrete are,  $f_{cu} = 30\text{kN/mm}^2$ .

The RC wall is designed using FEM-linear and FEM-nonlinear and will be tested after 28 days due to lab work procedure.

The conditions of the RC wall with openings that will be designed and tested are:

- a) A simply supported RC-wall with openings is subjected to uniformly distributed load at top of the wall.
- b) A simply supported RC-wall with openings is subjected to point load at the mid-top of the wall.
- c) A line supported RC-wall with opening is subjected to point load at the mid-top of the wall.
- d) A line supported RC-wall with opening is subjected to uniformly distributed load at top of the wall.

In solving these problems, computer software called LUSAS using the fundamental concept of finite element was used. The software is the most suitable for both simple and complicated structural analysis. The software was applied for every model with similar number of elements, nodes, load, sizes and material properties. A comparison was made between the models with the laboratory work.