PROPOSED METHOD FOR COST ASSESSMENT OF SEISMIC MITIGATION DESIGNS FOR REINFORCED CONCRETE BUILDINGS

By

Yasser Mohamed Abdel-Hameed Fayed

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the degree of
MASTER OF SCIENCE
in
STRUCTURAL ENGINEERING

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Under the Supervision of

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Title of Thesis: Proposed Method for Cost Assessment of Seismic Mitigation Designs for Reinforced Concrete Building

Key Words:
Performance based analysis, Pushover analysis, Cost assessment, Crack width.

Summary:

The analysis methods used to design the structures to resist earthquake load ranges from equivalent linear static analysis to nonlinear dynamic analysis. Each seismic mitigation design for the structure influence its life cycle cost that includes the construction cost and repairing cost after earthquake damage. It is necessary to perform a cost assessment for each seismic mitigation design to know the effective design on the building life cycle cost.
The methodology followed in this study provides initial guidelines to assess the cost associated with using a variety of design methods for reinforced concrete structures, developing a performance based analysis to get the weakness points in the structure after earthquake, select the retrofitting strategies that would be indicated to repair the structure after the earthquake, and to assess the results founded from each design method or different design codes.

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Dedication

I dedicate this thesis to the people who devoted their lives to make me a successful person, my **Father**, my **Mother,** my **Sister**.
Gratitude and appreciation cannot describe my feelings towards them.

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