



Cairo University

NON-LINEAR SEISMIC ANALYSIS OF R.C. COUPLED SHEAR WALLS

By

Islam Hussain Ahmed Hussain

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

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Non-linear seismic analysis of R.C. coupled shear walls

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Summary:

In multi-story buildings, there are different types of systems to resist seismic and wind loads. One of these systems is coupled shear wall. This system consists of two reinforced concrete walls which are connected by coupling beams. This system is used in medium and high rise buildings. In this range they provide an efficient structural system for resisting the lateral loading effects. In this research we studied the behavior of coupled shear walls under seismic loads using SAP2000 program. The coupled shear walls were analyzed using pushover analysis and time history analysis. Three different actual earthquakes were used in time history analysis. A parametric study were performed under both time history and pushover analyses. These parameters are wall length, beam span, beam depth, wall reinforcement, beam reinforcement and building height. The results show that the behavior of the coupled shear wall depends on these parameters.

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Dedication

I wish to dedicate my thesis to the soul of Mr.Salah El-Din Sofy Othman, Prof. Dr. Mohamed Elmarzoky, and My supervisors especially Assoc. Prof. Dr. Bahaa El-Din Hanafy Mahmoud.

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