THE LINEAR AND NONLINEAR BEHAVIOR OF MID-RISE COMBINED CONCRETE BUILDINGS UNDER THE INFLUENCE OF LATERAL LOADS

By

Mohammed Ishaq Shah Mahmood Khan

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: **The Linear and Nonlinear Behavior of Mid- Rise Combined Concrete Buildings Under the Influence oF Lateral Loads.**

Key Words:
Mid-rise building behavior , time period, maximum Displacement , linear and non linear

Summary:

Estimating of time vibration is an essential step in the design of earthquake loads, the current codes of the design contains equations to calculate the time period, which depends on height of structure and the building material , so this thesis study the behavior of the building and the time period for mid-rise combined buildings which contains shear walls and frames using Etabs 16.2.1 to perform eigenvalue analysis , with the consideration of the following : height of structure, length to width ratio, vertical element size , load increment ratio by to ways linear and nonlinear. Comparison has been done between code formulas and programme results, depend on these results an analytical relation has done to suggest equations for estimating time period, these equations will allow design engineers the ability to estimate time period value accurately and quickly.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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Author

Mohammed Ishaq Shah

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