SEISMIC RESPONSE EVALUATION OF MULTI-STOREY BUILDINGS WITH SOFT FLOOR

By

Mariem Mohamed Abd Al Ghany

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: SEISMIC RESPONSE EVALUATION OF MULTI-STOREY BUILDINGS WITH SOFT FLOOR.

Key words: Flexible storey; moment resisting frame; multi-storey building; stiffness; shear wall system.

Summary:

Most of multi-story buildings in Egypt require open storey for parking, retail shopping and meeting rooms, etc. Presence of the soft storey in the building causes structural irregularity in terms of stiffness and strength. Therefore, determination of the soft-storey requirements and the factors due to presence soft-storey are essential to earthquake design and to predict the seismic performance of high-rise buildings. On the other hand, the effect of taking into account the soft storey will lead to a change in the requirements of global seismic design codes. In this study, FEM program was used. Besides, many factors have studied the behavior of building with soft storey such as height of the soft storey, the existence of infill wall, plan irregularity, and the number of stories and bays. Analytical, the results show the importance of highlight this issue to improve seismic resistance and avoid any cracks or progressive collapse during earthquake.

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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Thank you

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