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Assessment and mitigation of seismic pounding between adjacent buildings

By

Mohamed Raafat Hashem Refay

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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Title of Thesis :

Assessment and mitigation of seismic pounding between adjacent buildings.

Key Words: Reinforced concrete structures, seismic loads, pounding force, gap element, time history.

Summary :

This study is mainly concerned with the calculation of the pounding force resulting from the collision of the adjacent buildings under the seismic loads and calculating the sufficient separation distance between them. The considered design parameters include: the separation distance, dynamic characteristic of the buildings (stiffness and mass). A technique for seismic pounding mitigation based on locally connecting the adjacent frames at various floors is also proposed and evaluated in this thesis. .

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