شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

INFLUENCE OF INFILL WALLS ON REDUCTION OF THE SEISMIC GAP

By

Ahmed Mohamed Abdel Hamid Omar

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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Approved by the
Examining Committee

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Title of Thesis:

Influence of infill walls on reduction of the seismic gap

Key Words:
Infill walls; Separation distance; RC frames; Push over analysis; damage state

Summary:

Earthquake induced pounding is one of the main causes of severe structural damage. Pounding is a phenomenon that normally occur between two adjacent buildings with different dynamic properties. Pounding can occur in one of two forms either over a story level or over inter story level in which slab of one building hit the column of the other building. The main cause of the pounding phenomena is due to the insufficient separation distance between adjacent buildings. This could be due to a lack of accurate calculation or due to the expensive price of land plots. Infill walls are normally used in reinforced concrete buildings as a nonstructural element, they mainly used for architectural purposes. However, the use of the infill wall is proved to have many advantages in terms of improving the overall structural capacity, stiffness, and ductility. The use of the infill wall in the modeling is almost not mentioned by any of the international codes. The main purpose of this research is to use the infill wall to reduce the separation distance between adjacent buildings. Furthermore, we will mention in detail the factors to define the infill wall and methods of modeling. In addition, the influence of different parameters on the buildings, like a number of stories, wall compressive strength, wall thickness, percentage of infill in elevation, and wall aspect ratio. Results indicate that the infill wall has a significant effect on improving the lateral stiffness of the building. Moreover, it has a significant effect on reducing the separation distance.

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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