شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه 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

بعض الوثائق الأصلية تالفة

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

Cairo University

Evaluation of Lateral Response of Tall Building with New Proposed Outrigger Locations

By

Mahmoud Mohammed Mahmoud Eisa Eisa

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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Approved by the
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Title of Thesis:

Evaluation of Lateral Response of Tall Building with New Proposed Outrigger Locations

Key Words:
Outrigger System; Proposed outrigger location; Seismic Fragility

Summary:
Choosing the locations of outriggers along the height of buildings is mainly based on reducing the fundamental period of it, and thus the overturning moments. In this study, an alternative procedure is proposed to allocate outriggers along the height of the building. The proposed procedure aims to reduce the difference in periods between the first two orthogonal modes of concerned structure, and thus to reduce the contribution of the twisting effect. In order to verify the accuracy of this procedure, four building heights are considered herein. These heights are numerically modeled creating almost a hundred 3D nonlinear finite-element models considering both traditional and proposed outrigger allocation techniques. First, modal properties are developed for the investigated structures to ensure the effectiveness of using the new procedure in reducing the twisting moments. Next, seven different earthquake records, with six peak ground accelerations, are applied to previously mentioned structures and expected response is evaluated. Finally, probability of different damage states is to establish using fragility curves considering both traditional and proposed procedures utilized in allocating outriggers. The results indicate that systems which use the proposed technique have stability and efficiency more than counterparts in the resistance of lateral excitation.