بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــســـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

Tanta University
Faculty of Engineering

EARTHQUAKE ANALYSIS OF R.C. CHIMNEYS ON RIGID AND FLEXIBLE SOIL

A Thesis Submitted for the Partial Fulfillment
of the Requirements for
the Degree of

MASTER OF SCIENCE
In
STRUCTURAL ENGINEERING

By

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Demonstrator, Faculty of Engineering, Tanta University
B.Sc. structural Engineering Dept., Tanta University, 1998

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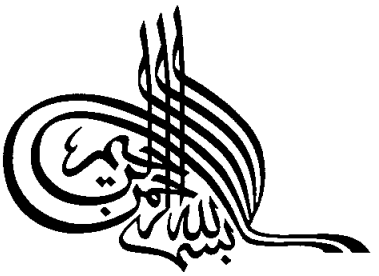

" و ما أوتيتم من العلم إلا قليلا "

صدق الله العظيم

To my father and mother

ACkNOWLEDGMENTS

First and foremost, price and thanks be to be Almighty **ALLAH**, the most Gracious, the most merciful and peace is upon his prophet.

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ABSTRACT

Because of the tallness and slenderness of chimney structure, it is strongly affected by earthquakes. In analyzing of R.C. chimneys subjected to such type of loading, the ACI, I.S., and other specifications provide two procedures for obtaining the equivalent effect of earthquake on structures such as chimneys. One of these, is the equivalent static lateral force method, which is based on the fundamental period of vibration. Other, is the dynamic response spectrum method, which is mainly dependent on the dynamic characteristics of the chimney.

To analyze any chimney with any dimensions by the response spectrum method, it is required first to obtain the chimney model characteristics, which in turn requires constructing mathematical model and performing computer analysis for each chimney. As this procedure consumes time and effort, this study aims to search about simple and exact formulae for quick calculation of chimney as function of its geometrical and material properties. In this study the obtained simple formulae predicting preciously the chimney base moment, base shear, and top lateral displacement due to EL-Centro-1940 Earthquake ground motion.

On other hand, the effect of soil-structure interaction has been considered in this study, as well as linear and nonlinear analysis is performed to have actual and optimum stress due to the effect of major earthquakes.

Also, a parametric study has been presented to show the influence of chimney these parameters on the dynamic response of R.C. chimney on rigid and flexible soil media.

Finally, the simple equivalent estimates has been obtained for the effect of soil flexibility on natural frequencies, straining actions at the base, and top lateral displacement for any chimney. Which, save time and effort with highly accurate results.

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