شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

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

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالأصل

EFFECT OF REINFORCEMENT ON PUNCHING SHEAR BEHAVIOR OF FLAT SLABS

By

SULAIMAN NAYEF AHMED AL-GUMAILY

A Thesis Submitted to the Faculty of Engineering at Cairo University
In Partial Fulfillment of the Requirements for the Degree of
DOCTOR OF PHILOSOPHY
in
STRUCTURAL ENGINEERING

Faculty of Engineering, Cairo University
Giza, Egypt
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Under the Supervision of
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Title of Thesis:	Effect of Reinforcement on Punching Shear Behavior of Flat Slabs
Key Words:	flat slabs, punching, shear reinforcement, ductility, energy absorption index, codes, proposed equations

Summary:

This study is carried out to investigate the behavior of 12 flat slab specimens having average characteristic compressive strength of approximately 35 MPa subjected to a concentric compressive load . The slab dimensions were the same for all twelve specimens, (1100 x 1100 x 120) mm, with a square column dimensions equal (150 x 150 x 400) mm at the center of slab. During testing, ultimate load, steel strain, cracking pattern and deformation were recorded.

The experimental results are analyzed and compared against values estimated from different international design codes. Nonlinear finite element modeling using" ANSYS" program is made to conduct the numerical investigation of the general behavior of punching shear resistance. A new formula should be proposed for more accurate estimation of punching shear resistance of flat slab taking into consideration the effect of main factors of punching shear.

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.

Date: ../../…(it's the date that you handover the thesis)

Name:

Signature:

Acknowledgement

First and foremost, praise and thanks for God

To the spirit of my father and my mother

I would like to express my deepest gratitude and appreciation to my supervisors ***Prof. Dr. Mohammed Rabie Mahmoud Hussain*** *and* ***Dr. Wael Salah Aldeen Zaki Mohamed*** *for their guidance, indispensable help, encouragement and valuable advice throughout this research work.*

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Sabaiman Nayef Ahmed Al-Gamaily
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