شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

MONA MAGHRABY

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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

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

RELIABILITY ASSESSMENT OF STIRRUPS IN RESISTING PUNCHING SHEAR IN R.C. FLAT SLABS

By

AHMED RAAFAT GHANEM

A Thesis submitted to the
Faculty of engineering at Cairo University
In Partial Fulfilment 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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Title of Thesis:

Reliability assessment of stirrups in resisting punching shear in R.C. flat slabs

Key Words:
Punching shear reinforcement, stirrups, yield strength, slab thickness, multiple leg stirrups

Summary:

Punching shear is one of the critical concerns in design of flat slab systems. The new Egyptian code ECP203-2018 allowed the use of shear reinforcement in resisting punching shear. This research is conducted to investigate the effect of different parameters regarding shear reinforcement on the punching capacity of flat slabs. These parameters include yield stress of stirrup, extension of stirrups from column face along slab span, slab thickness and the use of multiple leg stirrups against closed stirrups. The experimental program in this research includes testing 8 slab specimens with dimensions of (1200x1200) mm with thickness of 160mm and 200mm. The results of the experimental work were compared to provisions of ECP203-2018, ACI318-19, and EC2 codes. The results showed that increasing slab thickness from 160mm to 200mm increased the punching capacity by 20% for slabs without stirrups and 50 % for slabs with stirrups. Using closed stirrups increases punching shear strength of flat slabs as compared to multiple-leg stirrups.

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.

Name: Ahmed Raafat Ghanem Date: / /

Signature:

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