شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

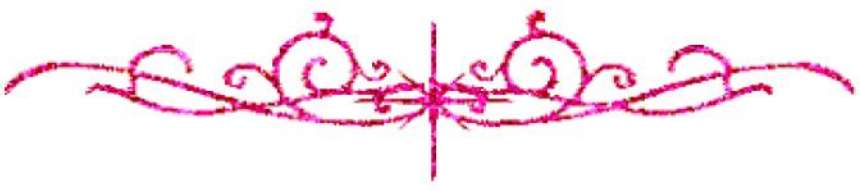
نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة



بالرسالة صفحات
لم ترد بالأصل

BEHAVIOR OF FLAT SLABS WITH SHEAR REINFORCEMENT IN PUNCHING

By

Ahmed Hassan Sayed

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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Title of Thesis:

BEHAVIOR OF FLAT SLABS WITH SHEAR REINFORCEMENT IN PUNCHING

Key Words:
Shear reinforcement; Flat slab; Punching shear; Vertical stirrups; Punching shear capacity

Summary:
At this research, we have studied the effect of shear reinforcement in the shape of vertical stirrups on punching shear behavior of flat plates. In this regards eleven specimens were tested to study the effect of shear reinforcement on punching shear. Two specimens were the control specimens without vertical stirrups, the remnant specimens were reinforced with different arrangements of vertical stirrups. The variables which took into consideration at this research included stirrups spacing, slabs thickness, the width of stirrups, a cut-off distance of stirrups from column face, and the number of stirrups branches. The results indicated that there is a significant improvement in punching shear capacity of the slabs which were reinforced by vertical stirrups. As for, the theoretical part of the experimental results were analyzed and compared with the estimated values from guidelines of various global design codes as ECP, ACI, and BS code.

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 Hassan Sayed Sayed Date: / 10 / 2020

Signature:

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I want also to thank my father, especially my mother for her care and support all the time, and all my friends who always help me for success. I would not able to achieve this goal without their help and support.

Dedication

To my family, my brothers, my sister, and all my friends.

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