بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

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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MONA MAGHRABY

SHEAR BEHAVIOR OF RECYCLED AGGREGATES R.C BEAMS WITH OPENINGS

By

Mohamed Khamis Metwally Mesrega

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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Under the Supervision of

Prof. Dr. Hany Ahmed Abdalla

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Building Materials and Quality Control
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Title of Thesis:

" SHEAR BEHAVIOR OF RECYCLED AGGREGATES R.C BEAMS WITH OPENINGS"

Key Words:

beam; Normal; Recycled; Coarse; Opening

Summary:

An experimental program was carried out to investigate shear behavior of recycled reinforced concrete beams with openings. Nine specimens were tested with different parameters, such as recycled concrete aggregates ratio, openings in beams, opening height, opening position and reinforcement around the openings. Specimens consisted of two beams with NCA, another two beams with 100% RCA ratio and five beams with 50% RCA ratio. The results showed that using recycled concrete aggregates in beams decreases shear strength and increases the deflection of beams. Openings in beams with NCA and RCA decreases shear strength of beams. Increasing opening height from 10cm to 15 cm slightly decreases shear strength. Opening position was significantly affected on shear strength when approaching the maximum shear zone. Increase steel reinforcement around the openings improve the shear strength.

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: **Mohamed Khamis Metwally Mesrega** Date:

Signature:

Dedication

I wish to dedicate this Thesis to my Mother, MY Father, My brother, My sisters and all my friends

Acknowledgments

First and foremost, praise and thanks to Almighty ALLAH, the most Gracious, the most merciful, and peace is on His Prophet, Mohamed.

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