



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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MONA MAGHRABY



Cairo University

REPAIR OF RC BEAMS SUBJECTED TO TORSION USING STEEL PLATES

By

OSAMA AHMED MOSTAFA ALI

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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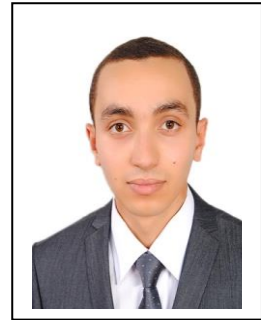
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Title of Thesis:

" REPAIR OF RC BEAMS SUBJECTED TO TORSION USING STEEL PLATES "

Key Words:

RC beams; Steel Plates; Torsion; Repair; twisting angle

Summary:

An experimental program was carried out to investigate the behavior of rectangular reinforced concrete beams strengthened by using steel plates under torsion. Eight specimens were tested with different parameters, such as the effect of configurations, the orientation of steel plates, and the width of strips. The ultimate load capacity, the ultimate torque, and the twisting angle of the specimens were investigated after laboratory experiments. The results showed that the use of steel plates improves the ultimate load-bearing capacity of all repaired beams, where full wrapping is the most efficient configuration. Also, the U-jacket steel plate technique provides higher torsional strength than the 90-degree strips applied to the beam axis. The results show that the width of the strips plays a vital role in strengthening, where specimens of the largest width are directly used to increase the resistance of the RC beams and decrease the angle of twisting of the reinforced concrete beams subjected to torsion.

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.

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Date:

Signature:

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