بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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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

يجب أن

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MONA MAGHRABY

EXPERIMENTAL AND ANALYTICAL STUDY OF CIRCULAR SPLICE CONNECTION UNDER LATERAL LOADS

By

Ibrahim Mohamed Ibrahim Mustafa

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:

Experimental and Analytical Study of Circular Splice Connection under Lateral Loads

Key Words:
Sign support structures; Circular hollow section; Circular splice connection; Circular end plate

Summary:

Circular hollow steel sections (CHS) are widely used as structural supports for highway signs, luminaires, and traffic signals. A circular splice connection is typically used to connect different parts of the section. In this research, a series of the experimental tests were performed to investigate the effect of lateral loads on a circular splice connection of CHS section considering different connection configurations under the effect of lateral loads. Each sample consisted of two circular hollow sections connected together by a splice connection. Each sample was fixed at its base and free at the other end at which it was subjected to lateral concentrated load. The considered connection configurations include common splice connection, added strengthening plain concrete and internal welded ring stiffeners. In addition, finite element models using "Abaqus/CAE-2016" were created and verified against experimental results. Results of the study involve numerical and graphical comparison between different connection configurations while focusing on the load – displacement curves and the load – strain curves.

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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