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

يجب أن

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MONA MAGHRABY

A STUDY OF THE MODELLING OF RIGID AND SEMI-RIGID END-PLATE STEEL CONNECTIONS

By

Elsayed Faisal Salman Elnaday

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

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Title of Thesis:

A Study of the Modelling of Rigid and Semi-Rigid End-Plate Steel Connections

Key Words:

Steel connections; Extended end-plate; flush end-plate; Rigid connections; Semi-rigid connections.

Summary:

A numerical simulations using ABAQUS software were performed on full scale steel beams connected to the columns (beam-to-column connection) with two different types of endplate connections (Extended and flush) to study the effect of a number of variables on connections behavior. Tow finite element models were calibrated, first model using tested data, second model using analytical data from Eurocode 3 in order to verify the results. The models were simulated under static loads and the behavior of the connections was analyzed from moment-rotation (M–ϕ) curve. Moment-rotation curve is a method for representing the stiffness, strength and ductility of a connection. The classification of the connections was determined by the European 3, American and Egyptian codes. The three codes were compared based on the classification of connections.

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: Elsayed Faisal Salman Date: …. / …. / 2020

Signature:

Dedication

I dedicate this work to ALLAH almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength throughout this the thesis. I also dedicate this work to my parents, brothers, sisters, friends and professors who have encouraged me all the way and whose encouragement have made sure that I give it all it takes to finish that which I have started. Thank you. My love for you all can never be quantified. ALLAH bless you.

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