شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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HANAA ALY

LABORATORY TESTING AND NUMERICAL MODELLING OF FRAME APEX CONNECTIONS FABRICATED FROM STEEL COLD-FORMED SECTIONS

By

Mohamed Hosny Zaki Abdelrahman

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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Key Words:
Cold-Formed Sections; Apex Connections; Experimental Testing; Finite Element Modelling; Self-drilling Screw Connection

Summary:

In this study, the behavior of cold formed steel portal frame apex connection subjected to major axis bending moments have been investigated. For this purpose, experimental and numerical models have been developed. Two types of fasteners have been studied. First, self-drilling screws with diameter 6mm, whereas the second type is ordinary bolts of diameter 12mm. Four specimens have been fabricated to investigate the behavior of these connections. Further, the specimens are modeled numerically using (ABAQUS) software. The model is verified by comparing its results with the experimental tests. A parametric study was conducted to investigate the effect of bolt type, gusset plate thickness, bolt number and arrangement, and the use of lower flange plate.

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 Hosny Zaki Date: ../../2021

Signature:

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Mohamed Hosny Zaki

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