سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

سامية محمد مصطفى

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

سامية محمد مصطفى

شبكة المعلومات الجامعية

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

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

سامية محمد مصطفى

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة

سامية محمد مصطفى

بالرسالة صفحات لم ترد بالأصل

BEHAVIOUR OF HIGH-STRENGTH FIBER REINFORCED CONCRETE COLUMNS SUBJECTED TO CONCENTRIC AND ECCENTRIC AXIAL LOADS

BY

AHMED ALI HASAN ABD EL-WAHAB

A Thesis Submitted to the
Faculty of Engineering at Cairo university
In Partial Fulfillment of the
Requirements For the Degree of the
MASTER OF SCIENCE
In
STRUCTURAL ENGINEERING

Under the supervision of

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FACULTY OF ENGINEERING. CAIRO UNIVERSITY
GIZA, EGYPT
1999

TO: MY LATE FATHER

, MY MOTHER

AND

MYWIFE

ABSTRACT

High–Strength Concrete is a brittle material and also the increase in concrete strength reduces its ductility. The higher the strength of concrete, the lower is its ductility. This inverse relations between strength and ductility is a serious drawback for the use of high-strength concrete, and compromise between these two characteristics of concrete can be obtained by adding discontinuous fibers. The behavior of high-strength concrete columns confined by rectilinear ties, and subjected to different loading conditions was investigated.

An experimental program consists of two phases was carried out. The first phase included tests of sixteen square specimens under axial loads only. Effect of variables such as concrete compressive strength, amount of transverse reinforcement, yield strength of transverse reinforcement, column height, spacing of transverse reinforcement, amount of fiber content and fiber types was investigated. The second phase included tests of six square columns subjected to both axial loads and eccentric loads. The main variables were the concrete compressive strength, amount of fiber content, and the applied eccentricity. Moreover, the mechanical properties of fiber high-strength concrete using two types of fibers, and two concept of adding silica fume; one by using silica fume amount as a replacement of cement content, the second concept is using silica fume by addition to cement content, are investigated. This study includes also the effect of each parameter on the strength, stiffness

degradation and ductility of the tested columns. Finally, the conclusion and summary of results were obtained.

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