PRE-STRESSED CONCRETE FRAMES ANALYSIS AND DESIGN SOFTWARE DEVELOPMENT

By

Elsayed Mohammed Elsayed Elsheikh

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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Professor of Concrete Structures
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Professor of Concrete Structures
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GIZA, EGYPT
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Title of Thesis:

Pre-Stressed Concrete Frames Analysis and Design Software Development

Key Words:

Pre-Stressed concrete; Software; Programming; Stiffness matrix.

Summary:

Structural engineers spend lots of time and efforts to perform design calculations. Nowadays calculations are made by computers with suitable softwares. The famous softwares for structural design are expensive and do not follow local code specifications. In addition most governments started serious procedures to protect the intellective possesses. Very soon illegal copies of computer programs will not be available. The ideal alternative is to develop local programs. The program developed in this study is a contribution in this direction. The study presents a computer program for the analysis and design of prestressed concrete frames with user friendly forms for inputs and both graphical and numerical outputs. The calculations follow the Egyptian code for the design and construction of reinforced concrete (ECP 203). The program was developed using the programming language Microsoft visual C++ 2010.

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