



Cairo University

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

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Under the Supervision of

Prof. Dr. Ashraf Hassan Elzanaty

Prof. Dr. Abdel Hamid Zaghw

Professor of Concrete Structures
Faculty of Engineering, Cairo University

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Approved by the
Examining Committee

Prof. Dr. Amr Ali Abdul Rahman, External Examiner

Prof. Dr. Mostafa Fouad El-Kafrawy, Internal Examiner

Prof. Dr. Ashraf Hassan Elzanaty, Thesis main Advisor

Prof. Dr. Abdel Hamid Zaghw, Member

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2014

Engineer's Name: Elsayed Mohammed Elsayed Elsheikh
Date of Birth: 20/11/1985
Nationality: Egyptian
E-mail: Engsayed2007@yahoo.com
Phone: 01061601529
Address: 60 - 1st district – zone 4 – Elsheikh zayed - Giza
Registration Date: 01/10/2009
Awarding Date:/....../.....
Degree: Master of Science
Department: Structural Engineering



Supervisors:

Prof. Dr. Ashraf Hassan Elzanaty
Prof. Dr. Abdel Hamid Zaghw

Examiners:

Prof. Dr. Amr Ali Abdul Rahman (External examiner)
Prof. Dr. Mostafa Fouad El-Kafrawy (Internal examiner)
Prof. Dr. Ashraf Hassan Elzanaty (Thesis main advisor)
Prof. Dr. Abdel Hamid Zaghw (Member)

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 intellectual possessions. 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.

Acknowledgments

First and forever, all thanks and praise are due to ALLAH, the absolute source of knowledge and wisdom, without His help nothing would have been achieved.

I would like to express my deepest gratitude to Prof. Dr. Abdel Hamid Zaghw, Professor of Reinforced Concrete Design, Faculty of Engineering, Cairo University. In fact, he has enlightened for me the way of sound scientific research by giving me valuable information, directions and encouragement, and has dedicated a lot of his precious time and effort to the whole work with the result that this thesis has seen the light.

I owe special debts of gratitude to Prof. Dr. Ashraf Elzanaty, Professor of Reinforced Concrete Design, Faculty of Engineering, Cairo University, for his stimulatory supervision, continuous help, faithful guidance and assistance.

My sincere gratitude to Prof. Dr. Alaa Saad, Professor of Structure Analysis; Structural Engineering Dept., Faculty of Engineering, Zagazig University, for his kind help and his valuable assistance by giving constructive suggestions which helped me greatly in achieving this thesis in its successful end.

I want to thank all of those whose love makes the difference in my life. To my family, for being the light, joy, and fuel of my existence and for being my constant inspiration and support especially my son Ahmed Elsayed.

Last but not least, it is incumbent upon me to thank all those who, in one way or another, have helped in making this work possible like Engineer Hussein Nassar.

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