

Ain-Shams University
Faculty of Engineering

NONLINEAR ANALYSIS OF STEEL FRAMES

BY

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*To The Soul
of
My Father*



STATEMENT

This Thesis is submitted to Ain Shams University for the degree of Master of science in Structural Engineering.

The work included in this thesis was carried out by the author in the department of structural Engineering, Ain Shams University, from November 1989 till October 1993.

No part of this thesis has been submitted for a degree or a qualification

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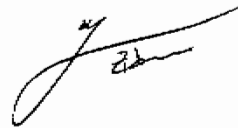
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ABSTRACT

This thesis deals with the nonlinear analysis of steel frames. The previous work in this field was reviewed. A mathematical model that describes the nonlinear behaviour of such structures was suggested. Also, the mathematical formulii necessary for the solution were presented. The nonlinear effects taken into account are : plasticity; instability ; effect of material nonlinearity; effect of axial forces on the plastic bending moments, and effect of change of geometry. A computer program for the analysis was prepared and the results were verified by comparing them with previously published results. Based on the study performed, conclusions and suggestions for future studies were given.

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