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FACULTY OF ENGINEERING-ALEXANDRIA UNIVERSITY

COMPUTER AIDED DESIGN OF REINFORCED CONCRETE BUILDINGS

A thesis submitted to the
Department of Structural Engineering
in partial fulfillment of the requirements
for the degree of

Master of Science

by

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Supervised by

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We certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a dissertation for the degree of Master of Science.

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To My Parents

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ABSTRACT

A computer program (DOSBR) for Design Of Slab Beam Roofs made of reinforced concrete is developed. The design is carried out according to the Egyptian code of 1989. This program is capable of designing any roof system composed of rectangular solid slabs or hollow block slabs and their supporting beams. It also produces the loads acting on supporting columns, and makes simple dimensioning for columns.

The program considers some indispensable additions to the code. These additions were necessary for cases where the code clauses did not include specific clear recommendations. An example of these additions is the way of handling slabs subjected to live loads exceeding the limit of 400 Kg/m^2 imposed by code. Another example is the abrupt discontinuity in the minimum thickness of slabs resulting at the limit distinguishing one way slabs from two way slabs.

The developed program stops at specific stages to allow the designer to check the input data and make decisions concerning the thickness of slabs and the depth of beams. The program is capable of handling a floor including up to 600 slabs and 300 beam span in each direction and it can be executed on personal computers having a minimum of 640 KB of Ram.

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