شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومـــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قَسَـــم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

FORM AND THE THERMAL ENVIRONMENT IN EXTERNAL SPACES

by
May A. Al-Labbad

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the Requirements for the Degree
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Prof. Nasamat M. A. Abdelkader
Prof. of Architecture & Housing
Faculty of Engineering, Cairo University

Prof. Sayed M. Ettouney
Prof. of Urban Design
Faculty of Engineering, Cairo University

Assoc. Prof. Mohammed Mo'men Afify
Faculty of Engineering, Cairo University

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Approved by the Examining Committee:

Prof. Nasamat AbdelKader, (supervisor) N. Abdel-Kader

Prof. Sayed M. Ettouney, (supervisor)

Assoc. Prof. Mo'men Afify, (supervisor)

Prof. Morad AbdelKader (member)
Department of Architecture, Ain Shams University

Assoc. Prof. Ahmed Faheem (member)

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT

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أ.د / محمد محمد البرملجى
رئيس مجلس قسم الهندسة المعمارية
كلية الهندسة جامعة القاهرة

ABSTARCT

The subject of this work is the design of housing layouts in hot arid regions with respect to the climatic stresses that affect thermal comfort of people using outdoor spaces.

A special reference is made to Cairo, a typical city in a hot-dry climate. Relevant aspects of computer aided design in architecture, the design of residential areas and their thermal characteristics are reviewed.

A steady state, upgradeable to dynamic unsteady-state, mathematical model of the thermal conditions in residential areas is developed which forms the basis of an evaluative computer program.

The thesis is structured as follows: chapter one is an introduction to the problem of external environment in Cairo. In chapter two, the literature survey of the design of housing layouts in present practice and CAAD systems is stated. Chapter three is concerned with the outdoors thermal system as a whole, elements of the climate and the microclimate particularly solar radiation and sky longwave radiation and their significance to human thermal comfort. Chapter four describes the proposed mathematical model for the evaluation of the performance of external spaces between buildings. Chapter five discusses the effect of some design parameters on the resulting thermal environment external to buildings as performed by the model. Chapter six contains discussion of the results of using the model for analyzing two housing layout proposals planned for residential areas in Egypt. Chapter seven concludes the study and contains suggestions for further work.

ACKNOWLEDGMENT

The author wishes to express her deepest thanks and appreciation to Prof. Nasamat AbdelKader, Prof. Sayed Ettouney, and Assoc. Prof. Mo'men Afify, her supervisors, for their enormous support, guidance, valuable time, and patience.

The author is specially indebted to Prof. Sayed Ettouney who suggested the point of research and whose profound knowledge, genuinity, and humane attitude has always been an inspiration and a source of guidance and encouragement over the years, not only for the author, but evidently for many others of his students and colleagues.

Lastly, but not least, acknowledgment is due to my family whose ongoing encouragement allowed this work to materialize.