شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

بعض الوثائق الأصلية تالفة

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

Cairo University

MODELLING AND SIMULATION FOR ENERGY EFFICIENCY IMPROVEMENT IN COMMERCIAL BUILDINGS

By

Ahmed Hamdi Salama

B.SC

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

MECHANICAL POWER ENGINEERING

FACULTY OF ENGINEERING, CAIRO UNIVERSITY

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Title of Thesis:
MODELLING AND SIMULATION FOR ENERGY EFFICIENCY IMPROVEMENT IN COMMERCIAL BUILDINGS

Key Words:
Energy Simulation; DesignBuilder; Energy Efficiency.

Summary:

In this thesis, a simulation investigation has been implemented for an office building existing in Cairo, Egypt. The building shape, location, orientation, systems and constructing materials have been modelled in DesignBuilder software, and then it has been simulated for a one year energy simulation. This energy simulation aims to study the energy effect of walls, having a different U-wall value which has been selected to be within the recommended range founded in the "Egyptian code for improving the energy efficiency in commercial buildings". These walls have different properties according to the constructing materials thicknesses. The results show the optimum state that can be selected for the user.

Disclaimer

I hereby declare that this thesis is my own original work and no part of it has been submitted for a degree qualification at any other university or institute.
I further declare that I have appropriately acknowledged all sources used, and have cited them in the references section.

Name: Date:

Signature:

Dedication

To all my family members, my father, my mother, my wife, and my daughters Hana and Sama.

Acknowledgment

In the beginning of anything, we ask our God to support us and provide us with faith that when I would like to do something to make things around me better and asking him to support me, and to drive me toward things that enhance everyone's life. Thanks God for creating me in a good health and mentality that helped me to be in the situation I am in. I hope that I could use all the resources that our God have provided me with through my life. In the second place I would like to thank my parents for everything that they have provided me with, I believe that they are one of the greatest blessings that God has provided me with. My mother that words cannot describe the efforts she was exerting to raise, teach, and take care of me. My father who was guiding, supporting, and providing me with not only anything he has and thinks could help me. He was making my studying time as a priority for any family plans, caring about my progress not only through my Master's degree but through my whole life. His caring was inspiring me to go on when I am depressed, pushing me through when I am not motivated enough. He was providing me with his wise opinions, that his wisdom came from a wide range of different experiences, experiences which I believe they were obtained by reading daily newspapers and books, studies at faculty of law which enabled him to have different interpretations for one situation, and to look at things from different points of view, and a life experience which gained by going through a lot of a major and minor things through his life. I would like to thank my wife. She is a doctor, and she has a little baby to take care of "my lovely daughter". Although she was so busy and so stressed, she didn't forget that I am going through my Master's degree. Special thanks to Prof. Dr. Essam E. Khalil Who was so helpful, kind, and very modest in dealing with anyone. There is nothing better than dealing with a modest person who simplify and facilitate anything from his side. Eventually, thanks God for all blessings that I have, what I know and realize, and what I don't.

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