AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
Architecture department

EVALUATION OF THERMAL PERFORMANCE OF FAÇADE CLADDING IN OFFICE BUILDINGS IN EGYPT

A Thesis Submitted to the faculty of Engineering At Ain Shams University
In Partial Fulfillment of the Requirements for the Degree of
Master of Science In Architecture
By

Mai Mahmoud Saleh Abo Zeid

Bachelor of Science in Architecture engineering

Faculty of Engineering , Ain Shams University ,2009

Supervised By

Prof. Dr. Ahmed Atef El Desouky

Dr. Ashraf Ali Ibrahim Nessim

Cairo -2017

AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
Architecture department

EVALUATION OF THERMAL PERFORMANCE OF FAÇADE CLADDING IN OFFICE BUILDINGS IN EGYPT

By

Mai Mahmoud Saleh Abo Zeid

A Thesis Submitted to the faculty of Engineering At Ain Shams University
In Partial Fulfillment of the Requirements for the Degree of
Master of Science In Architecture

Approved by the Examining Committee:

Name and affiliation **Signature**

Prof. Dr Ayman Hassan Ahmed Mahmoud

Professor of architecture, Faculty of Engineering, Cairo University.

Prof. Dr. Khaled Dewidar

Professor of architecture ,Faculty of Engineering, Ain Shams University

Head of Architectural department at British university at Cairo.

Prof. Dr. Ahmed Atef El Desouky

Professor of architecture ,Faculty of Engineering, Ain Shams University.

Post graduate studies

Approval stamp

.../…/…/

The research was approved on

.../…/…/

Faculty Council Approval
.../…/…/

University Council Approval
.../…/…/

Statement

This thesis is submitted as a Partial Fulfillment of the Master of Science in Architecture engineering, faculty of Engineering At Ain Shams University.

The Author carries out the work included in this thesis, and no part of it has been submitted for a degree or a qualification at any other university or institution.

Signature

Mai Mahmoud Saleh AboZeid
Date:

Researcher Data

Name	: Mai Mahmoud Saleh Abo Zeid
Date of Birth	: 15/9/1987
Place of Birth	: Saudi Arabia
Last Academic Degree	: Bachelor Degree
Field of specialization	: Architecture engineering
University issues the degree	: Ain Shams University
Date of issued Degree	: July, 2009.
Current Job	: Architecture engineer at Authority Of educational buildings

Acknowledgements

First and for most, I have to thank God showing me his miraculous ways of directing my paths in life.
Thank you lord for granting me the most loving mother who have taught me great things as persistence, passion for knowledge, seek for excellence and moderation in all life paths. They have taught me to believe in you and myself, I dedicate this work for the soul of my father, Dr Mahmoud Abo Zeid, may he rest in peace.

Special thanks to Eng Mohamed Samy , my husband and closest friend for bearing with me, believing in my abilities and for his continuous interest and support ,To Mariam, my lovely daughter and real accomplishment in life, although very young understood and appreciated the time and effort I needed to finish this piece of work.

Special thanks are due to both my supervisors for their academic input and support. To Dr. Ahmed Atef, who as primary supervisor was always keen to provide his own expertise, knowledge and time whenever I needed.
To Dr Asraf Nessim my second supervisor for brainstorming sessions and constructive criticism,and at last but not least, thanks to Eng Mostafa Darwesh for his support and help

ABSTRACT

In dealing with the building as a thermal system, the correct choice of its parts and their relationships can be composed utilizing a frameworks approach. This can be accomplished by coupling an improvement method into the thermal performance of building right on time in the outline procedure. This requires planning the building all around as a thermal system in appropriate structure for the different methodologies.

The target of this thesis to estimate the potential of façade cladding to save energy by studying its thermal performance summarizes the result of a simulation analysis to determine the efficiency of envelope construction cladding in reducing energy consumption for office buildings in Egypt.

Key words

Energy Crisis, Energy Consumption, Building envelope, Cladding, Office buildings, Thermal performance

Table of contents

CHAPTER 5: RESULTS, CONCLUSIONS AND RECOMMENDATIONS.

The research reaches several conclusions from the theoretical and analytical approaches along the pathway to reach the main goal.
It also generated recommendations for the designers during their schematic design to guide them which façade cladding to use to reduce energy consumption in the building.

List of Figures