



Cairo University

**THERMAL PERFORMANCE OF NANOMATERIALS OF
A MEDIUM SIZE OFFICE BUILDING ENVELOPE
WITH A SPECIAL REFERENCE TO HOT ARID CLIMATIC ZONE OF
EGYPT**

By

Nouran Ashraf Ali

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
Architectural Engineering

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Under the Supervision of

Prof. Dr. Ahmed Reda Abdin

Prof. Dr. Samir Sadek Hosny

Professor of Architecture and
Environmental Design
Architectural Engineering Department
Faculty of Engineering, Cairo University

Professor of Architecture
Department of Architecture
Faculty of Engineering, Ain Shams
University
Head, Department of Architectural
Engineering, FUE, Future University in
Egypt

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Approved by the
Examining Committee

Prof. Dr. Ahmed Reda Abdin (Thesis Main Advisor)
Professor of Architecture and Environmental Control Department of Architecture,
Faculty of Engineering, Cairo University

Prof. Dr. Samir Sadek Hosny (Advisor)
Professor of Architecture, Department of Architecture, Faculty of Engineering, Ain
Shams University. Head, Department of Architectural Engineering, FUE, Future
University in Egypt.

Prof. Dr. Ahmed Ahmed Fekry (Internal Examiner)
Professor of Architecture and Environmental Control Department of Architecture,
Faculty of Engineering, Cairo University

Prof. Dr. Morad Abd-Elkader Abd-Elmohsen (External Examiner)
Professor of Architecture and Environmental Control Department of Architecture,
Faculty of Engineering, Ain Shams University

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2019

Date of Birth : 9 / 12 / 1991
Nationality : Egyptian
E-mail : Nouranashraf80@yahoo.com
Phone. : 01006514996
Address : 19 El-Khamsaen St. sector 13, Zahraa El
Maadi, Cairo, Egypt.
Registration Date : 1 / 10 / 2014
Awarding Date : / / 2019
Degree : Master of Science
Department : Architectural Engineering.



Supervisors : Prof. Dr. Ahmed Reda Abdin (Thesis main Advisor)
Prof. Dr. Samir Sadek Hosny (Advisor)

Examiners : Prof. Dr. Morad Abd-Elkader Abd-Elmohsen
(Ain Shams University) (External examiner)
Prof. Dr. Ahmed Ahmed Fekry (Internal examiner)
Prof. Dr. Ahmed Reda Abdeen (Thesis main Advisor)
Prof. Dr. Samir Sadek Hosny (Advisor)

Title of Thesis:

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Key Words:

Office Buildings-Building envelope- Energy consumption-Nano technology-
Nano insulation materials.

Summary:

According to the increase in energy consumption in Egypt, the building materials play a huge role to increase the energy efficiency of the building and reduce energy consumption. The use of nanotechnology in architecture gives us a huge step towards a better built environment, the integration of nanomaterials with building envelope can improve building thermal performance in hot arid climates of Egypt. This research represents a comparison between the energy consumption and thermal performance of Nano and traditional materials, finally the research represents the recommendations and results to understand the possibility of using nanotechnology in buildings.

Disclaimer

I hereby declare that this thesis is my own original work and that 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: Nouran Ashraf Ali

Date:

Dedication

TO MY FAMILY

MY FATHER, MY MOTHER, MY SISTER & MY BROTHER.

Acknowledgments

First, I would like to primarily thank God for my conciliation in this research and I hope that this research is useful.

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Table of Contents

DISCLAIMER	I
DEDICATION	II
ACKNOWLEDGMENTS.....	III
TABLE OF CONTENTS	IV
LIST OF TABLES.....	IX
LIST OF FIGURES.....	X
NOMENCLATURE	XIV
ABSTRACT	XV
CHAPTER 1 : INTRODUCTION AND RESEARCH OVERVIEW.....	1
1.1. INTRODUCTION	1
1.2. RESEARCH PROBLEM	2
1.3. RESEARCH QUESTIONS	2
1.4. RESEARCH HYPOTHESIS	2
1.5. RESEARCH SCOPE AND LIMITATIONS.....	3
1.6. RESEARCH GOAL	3
1.7. RESEARCH OBJECTIVES	4
1.8. RESEARCH METHODS AND TOOLS	4
1.9. RESEARCH STRUCTURE	6
CHAPTER 2 : BUILDING MATERIALS AND THERMAL PERFORMANCE FOR OFFICE BUILDINGS IN EGYPT	8
2.1. INTRODUCTION	8
2.2. BUILDING SECTOR AND SUSTAINABLE DEVELOPMENT ISSUES	9
2.3. ENERGY CONSUMPTION IN THE BUILDING SECTOR	9
2.3.1. Office building energy consumption in Egypt	12
2.4. THERMAL PERFORMANCE IN OFFICE BUILDINGS	14
2.4.1. Factors affecting thermal performance in buildings	14
2.4.2. Factors affecting energy performance of buildings.....	14
2.5. OFFICE BUILDING 'S PROTOTYPES (KEY CONSIDERATIONS)	15
2.5.1. Core configuration	15
2.5.1.1. Centre core building	15
2.5.1.2. Side core building.....	16
2.5.1.3. Exterior core	16
2.5.1.4. Double core	17
2.5.2. Area schedule.....	18
2.5.3. Floor to floor height	18

2.5.4.	Exterior wall systems	18
2.6.	BUILDING ENVELOPE	19
2.7.	ENERGY EFFICIENT BUILDINGS	20
2.7.1.	Effect of building envelope components on energy efficiency in office buildings 20	
2.7.2.	Effect of building materials on energy efficiency in office buildings.....	20
2.8.	BUILDING MATERIALS (ADVANCED MATERIALS)	21
2.8.1.	Smart materials	21
2.8.1.1.	Property-changing materials	22
2.8.1.1.1.	Phase change material (PCM).....	23
2.8.1.1.1.1.	Phase change material classification.....	25
2.8.1.1.1.2.	Selection criteria for PCMs for passive cooling of buildings.....	25
2.8.1.1.1.3.	PCMs integration with building envelope.....	26
a.	Application of PCM in walls.....	26
b.	Application of PCM in roofs:.....	32
c.	Application of PCM in ceilings:.....	33
d.	Application of PCM in windows	33
e.	Application of PCM in floors.....	35
2.8.1.2.	Energy-exchanging materials.....	36
2.8.2.	Building insulation materials	38
2.8.2.1.	Heat transfer in building envelope	39
2.8.2.2.	Thermal properties of insulation materials	41
2.8.2.3.	Thickness of thermal insulation materials.....	43
2.8.2.4.	Insulation materials integration with building envelope	44
2.8.2.4.1.	Insulation on the outside	45
2.8.2.4.2.	Insulation on the inside.....	45
2.8.2.4.3.	Insulation inside cavity walls.....	45
2.8.2.4.4.	Ventilated walls.....	46
2.8.2.4.5.	Thermal reflective surfaces	47
2.8.3.	Bio based insulating materials	48
2.9.	ALTERNATIVE ENERGY CONSERVATION MEASURES IN AN OFFICE BUILDING IN HOT AND HUMID CLIMATE (ECMs).....	50
2.9.1.	In no cost measures:	50
2.9.1.1.	Set point temperature	50
2.9.1.2.	Night time setback	51
2.9.1.3.	Schedule of lighting and equipment.....	51
2.9.2.	In low cost measures	52
2.9.2.1.	Insulated wall and roof	52
2.9.2.2.	The material of the floor	53
2.9.2.3.	More efficient glazing system.....	53
2.9.2.4.	Shading device for windows.....	54
2.9.2.5.	Energy-efficient lamps.....	54
2.9.3.	In major investment measures.....	54
2.9.3.1.	Replacement of CAV system with variable air volume (VAV) system.....	54
2.9.4.	Energy use for combined energy conservation measures	55
2.10.	CONCLUSION	57

CHAPTER 3 : NANOTECHNOLOGY AND ITS APPLICATIONS IN BUILDINGS.....58

3.1.	INTRODUCTION	58
3.2.	NANOTECHNOLOGY	59
3.2.1.	Brief history of NT	59

3.2.2.	Nano scale	60
3.2.3.	Nanotechnology areas of focus	61
3.2.4.	Nanotechnology and economy	62
3.3.	NANOARCHITECTURE (NA)	64
3.4.	NANOMATERIALS IN ARCHITECTURE.....	65
3.4.1.	Nanomaterial Historical Background.....	67
3.4.2.	Production approaches (nanofabrication techniques and tools)	67
3.4.3.	Nano materials classifications.....	69
3.4.3.1.	Classification according to its dimensions.....	69
3.4.3.2.	Second classification according to based materials	70
3.4.3.2.1.	Carbon based materials.....	70
3.4.3.2.2.	Metal based materials.....	71
3.4.3.2.3.	Dendrimers	71
3.4.3.2.4.	Composites.....	71
3.4.4.	Nanomaterials cost	71
3.5.	NANOARCHITECTURE APPLICATIONS AND ENERGY SAVING	71
3.6.	BUILDING CONSTRUCTION IN NANOTECHNOLOGY ERA (NANOTECHNOLOGY PRODUCTS AND BENEFITS FOR BUILDING CONSTRUCTION).....	72
3.6.1.	Nano glass (non-structural material)	73
3.6.1.1.	Electrochromic glass dynamic windows.....	74
3.6.1.2.	Thin film coating	74
3.6.1.3.	Thermochromic technology	75
3.6.1.4.	Heat absorbing window	75
3.6.2.	Energy saving materials (Nano Insulation Materials) (NIMs).....	75
3.6.2.1.	Nano vacuum insulation panels (VIPS)	76
3.6.2.2.	Thermal insulation (Nanogel Aerogel)	81
3.6.2.2.1.	Aerogel properties	83
3.6.2.2.2.	Insulating products	84
3.6.2.2.3.	Building applications.....	87
1.	Application on floors and roofs	88
2.	Application on walls	88
3.	Thermal bridge correction.....	91
4.	Aerogel glazing.....	92
5.	Aerogel-based rendering	93
3.6.2.3.	Temperature regulation PCMS	95
3.6.2.3.1.	Application of Nano PCM in walls	95
3.6.2.4.	Transparent insulating materials	97
3.6.2.5.	Nano bio based insulating materials	99
3.6.2.6.	Thin-film insulation.....	100
3.6.2.7.	Insuladd	100
3.6.2.7.1.	Insuladd energy saving paint	100
3.6.2.7.2.	Insulated window coating	101
3.7.	INTERNATIONAL BUILDINGS USING NANO MATERIALS	101
3.7.1.	Sonnenschiff Centre	101
3.7.2.	Sports hall Carquefou.....	102
3.7.3.	Seitz Strasse mixed-use building	102
3.7.4.	School extension	103
3.7.5.	SurFaveng housing for elderly.....	103
3.8.	CONCLUSION	104

CHAPTER 4 : OPTIMIZATION OF OFFICE BUILDING THERMAL PERFORMANCE WITH SPECIAL REFERENCE TO CAIRO105

4.1.	INTRODUCTION	105
4.2.	METHODOLOGY OF THE CASE STUDY	106
4.3.	SIMULATION FRAMEWORK.....	106
4.4.	BASE CASE PARAMETERS	109
4.4.1.	Weather data	111
4.4.2.	Architectural and structural design	113
4.4.3.	Technical specifications	113
4.5.	BASE CASE SIMULATION [MODEL A]	115
4.5.1.	Exterior wall for base case [Model A1]	116
4.5.2.	Exterior roof for base case [Model A2]	116
4.5.3.	Windows and opening of the building envelope [Model A3]	117
4.6.	UTILITY BILLS	118
4.7.	NANO CASE SIMULATION	120
4.7.1.	External walls for Nano model [Model B].....	120
4.7.2.	Exterior roof for Nano case [Model C].	122
4.7.3.	Windows and opening of the building envelope [Model D]	123
4.7.4.	Nano Aerogel plaster for external walls with Nano VIP for roof. [Model E].	124
4.7.5.	Aerogel-based rendering for external walls and nanogel glazing. [Model F]	125
4.7.6.	Nano thermal insulation and nanogel glazing [Model G].	125
4.7.7.	Nano case study [Model H].....	125
4.8.	RESULTS AND DISCUSSION	126
4.8.1.	Monthly variation in cooling and heating loads.....	126
4.8.2.	The annual energy consumption	128
4.8.3.	Thermal transmittance coefficient.....	129
4.8.4.	The fabric heat transfer	129
4.8.4.1.	Heat transfer through walls	129
4.8.4.2.	Heat transfer through roofs	130
4.8.4.3.	Heat transfer through curtain walls	131
4.9.	CONCLUSION	132
CHAPTER 5 : CONCLUSIONS AND RECOMMENDATIONS		133
5.1.	GENERAL CONCLUSION.....	133
5.1.1.	The essential challenge of sustainable energy consumption	133
5.1.2.	Energy efficient buildings and building materials	133
5.1.3.	Nanotechnology and its benefits	134
5.1.4.	The application of nanotechnology materials in architecture (innovative solutions).....	134
5.1.5.	Thermal building simulation tools	135
5.2.	RESEARCH RECOMMENDATIONS	136
5.2.1.	Recommendation for those working in the field of energy conservation.	136
5.2.2.	Recommendation for general architectural and construction community.....	136
5.2.3.	Recommendation for architects.....	136
5.2.4.	Recommendation for academic architectural studies	136
5.3.	FUTURE WORK	137
5.4.	NANOTECHNOLOGY RISKS	137
5.4.1.	Human Health Risks	137
5.4.2.	Environmental Risk.....	137

REFERENCES	138
APPENDIX A: PERFORMANCE CONSIDERATIONS OF NANO MATERIALS	
.....	144

List of Tables

Table 2. 1 The main applications of smart materials in the building sector.....	22
Table 2. 2 Thermal comfort enhancement with the ventilated cavity	29
Table 2. 3 Physical properties of the construction materials.....	30
Table 2. 4 Thermal conductivity and volume mass of main construction materials	41
Table 2. 5 Thermal insulation materials	42
Table 2. 5 Main renewable insulating materials of vegetable or animal origin in the market	49
Table 3. 1 Sizes of nanoscale objects	61
Table 3. 2 New properties and improved properties for traditional materials.....	66
Table 3. 3 Nanoproduct classification	70
Table 3. 4 Nanomaterials in architecture	73
Table 3. 5 Comparison between types of nanomaterials insulations in terms of properties, specifications and usage.	76
Table 3. 6 Performance and specifications of main VIPs on the market.....	79
Table 3. 7 Comparison between the physical properties of silica aerogel and silica glass.	82
Table 3. 8 Technical properties of silica aerogel.....	85
Table 3. 9 Comparison between aerogel and traditional insulating materials.....	86
Table 3. 10 Thermophysical properties of new aerogel insulation.....	90
Table 3. 11 Performance and real-world application comparison between traditional and Innovative insulating materials.	93
Table 3. 12 Thermo-physical properties of the new aerogel-based insulating coating ..	94
Table 3. 13 Energy demands for Nano-PCM and control walls.....	96
Table 3. 14 Classification of transparent insulating materials.	98
Table 4. 1 Areas of the tower sections.....	110
Table 4. 2 Base case's parameters	113
Table 4. 3 Input data used for calibration of the simulation program of model A	115
Table 4. 4 Building average monthly energy consumption.....	118
Table 4. 5 Input data used for calibration of the simulation program of model B.	120
Table 4. 6 Input data used for calibration of the simulation program of model C	122
Table 4. 7 Input data used for calibration of the simulation program of [model D]. ..	123
Table 4. 8 Input data used for calibration of the simulation program of [model E].....	124
Table 4. 9 Input data used for calibration of the simulation program of [model F].....	125
Table 4. 10 Input data used for calibration of the simulation program of [model G]. .	125
Table 4. 11 Input data used for calibration of the simulation program of [model H]. .	126
Table 4. 12 Thermal insulation models	126

List of Figures

Figure 2. 1 Example Definitions of sustainability often refer to the "three pillars"	9
Figure 2. 2 Energy consumption by sector	10
Figure 2. 3 CO2 emissions by sector	10
Figure 2. 4 Global energy consumption in 2013	11
Figure 2. 5 Energy consumption – sectors	11
Figure 2. 6 Egypt Electricity consumption (1980-2012) TWh [Energy Information Administration (EIA)]	12
.....	13
Figure 2. 7 Egypt's oil production and consumption (1980-2015). [Energy Information Administration (EIA)]	13
Figure 2. 8 Energy Consumption Pattern for Commercial Buildings in Egypt.....	13
Figure 2. 9 Factors affecting thermal performance	14
Figure 2. 10 The center-core building. [https://www.slideshare.net/joymeer/high-rise-structure-core].....	15
Figure 2. 11 The side-core building. [https://www.slideshare.net/joymeer/high-rise-structure-core].....	16
Figure 2. 12 The Exterior-core building.....	17
Figure 2. 13 The Double-core building	17
Figure 2. 14 A wall section of a typical office floor of a traditional speculative office building with dimensions of elements composing the floor-to-floor height	18
Figure 2. 15 All elements of the building envelope affect energy use [Technology Roadmap Energy efficient building envelope, 2013]......	19
Figure 2. 16 Advanced materials classification.....	21
Figure 2. 17 Different types of cooling techniques	23
Figure 2. 18 Phase change profile of PCM.....	24
Figure 2. 19 Comparing the heat storage capacity of a selection of commercial PCMs with typical construction materials.....	25
Figure 2. 20 Selection criteria based on PCM characteristics	26
Figure 2. 21 Schematic of the double SSPCM wallboard	26
Figure 2. 22 Layer temperatures of the SSPCM room (left) and the reference room (right) in cooling conditions	27
Figure 2. 23 Schematic of the double SSPCM wallboard	27
Figure 2. 24 Verification of the Energy Plus model by comparison with the mathematical model.....	28
Figure 2. 25 The operative temperature trend in the room model [Evola, et al.2014] ...	28
Figure 2. 26 Profiles of the walls (a) with and (b) without PCM in the numerical model	29
Figure 2. 27 Schematic diagram of the experiment units and the control room	30
Figure 2. 28 Comparison of Energy Saving Index (ESI) of a room with PCM and EPS in the summer (upper panel), and over an entire year (lower panel) [Ye, et al. 2014]......	31
Figure 2. 29 Two identical cubicles used for thermal performance measurements [Barreneche, et al. 2016]......	31
Figure 2. 30 Temperature variation between the PCM cubicle and the reference cubicle and the directly measured temperature on the dense sheets	32
Figure 2. 31 Boundary conditions for the simulation.....	32

Figure 2. 32 the performance and structure of the ceiling panel in the building ventilation system	33
Figure 2. 33 Window shutters used for the experimental test and their details (right) ..	34
Figure 2. 34 Internal air temperature comparison and its decline between cubicles [Silva, et al. 2015]	34
Figure 2. 35 Schematic of a PCM curtain window	35
Figure 2. 36 The effect of PCM thickness on heat transfer rate with an air gap of 5cm (left) and the variation of average inner surface temperature for PCM and cloth curtains (right).....	35
Figure 2. 37 The use of an internal thermal mass in the PCM floor panel during (a) daytime and (b) nighttime and the concrete hollow floor slab	36
Figure 2. 38 The ambient temperature and temperature variation of the floor panels' surfaces (left) and the dimension less value of the heat energy per unit of surface (dashed line) and the heat flux variation of the PCM floor panel as a function of time(right).....	36
Figure 2. 39 Photo luminous pavement. Courtesy of Pro-Tec Surfacing Ltd [Casini, 2016a]	37
Figure 2. 40 Van Gogh cycle track. Courtesy of Studio Roosegaarde	37
Figure 2. 41 Piezoelectric pavement.....	38
Figure 2. 42 Pavegen tiles. Courtesy of Pavegen Systems Ltd	38
Figure 2. 43 Heat exchange processes between building envelope and the external environment.....	39
Figure 2. 44 Heat transmission through a single wall	40
Figure 2. 45 Evolution of thermal insulation thicknesses in several European countries: in exterior walls	44
Figure 2. 46 Evolution of thermal insulation thicknesses in several European countries in roofs.....	44
Figure 2. 47 Perimeter wall insulation methods	45
Figure 2. 48 Thermal bridge correction and insulated cavity wall	46
Figure 2. 49 Ventilated wall operation (summer daytime).....	46
Figure 2. 50 Thermal reflective coatings	47
Figure 2. 51 Reflective microsphere structure [Casini, 2016b].....	48
Figure 2. 52 Shored egragopili	50
Figure 2. 53 Monthly energy savings results from applying set point temperature	51
Figure 2. 54 Monthly energy savings results from applying nighttime setback mechanism [Iqbal & Al-Homoud, 2007].....	51
Figure 2. 55 Monthly energy savings results from applying schedule of lighting and equipment	52
Figure 2. 56 Monthly energy savings results from applying more wall insulation	52
Figure 2. 57 Monthly energy savings results from applying more roof insulation	53
Figure 2. 58 Monthly energy savings results from low-e glazing	53
Figure 2. 59 Monthly energy savings result from using energy-efficient lamps.....	54
Figure 2. 60 Monthly energy savings results from using VAV system	55
Figure 2. 61 Annual energy use for combined energy conservation measures	56
Figure 3. 1 World-wide Nanotechnology Organizations 2002.....	60
Figure 3. 2 Sequence of images showing the various levels of scale	60
Figure 3. 3 Nanotechnology focusing.....	62
Figure 3. 4 US Federal Nanotechnology Funding from 2000 to 2013	62
Figure 3. 5 Number of Nano products till 2013	63
Figure 3. 6 Number of products according to category	63