IMPACT OF INCORPORATING NANOCOATINGS ONTO BUILDINGS TO IMPROVE AIR QUALITY AND MITIGATE CLIMATE CHANGE: CASE STUDY OF RESIDENTIAL BUILDINGS - EGYPT

by

Ehsan Mostafa Kamal Ali Mohamed

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
Department of Architecture

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Under the Supervision of

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Title of Thesis:

Impact of Incorporating Nanocoatings onto Buildings to Improve Air Quality and Mitigate Climate Change: Case Study of Residential Buildings – Egypt

Key Words:
Nanotechnology, Nanocoating; Air quality, Carbon dioxide, Mitigate climate change.

Summary:

Megacities face colossal challenge, mainly air pollution due to transportation, large number of inhabitants' activities and energy use in all sectors. Thus, improving air quality in megacities is one of the urgent and major actions needed to enhance liveability in megacities in developed and developing countries. Several research studies indicated that the use of nanotechnology to solve pollution problems, where Nanocoatings are used to purify air around buildings' facades or that entering into buildings. For a megacity like Cairo, causes of pollution may be vary depending on the geographical location, temperature, wind and weather factors, and pollution is dispersed differently. This thesis presents a study on the impact of using Nanocoating on residential buildings' to improve air quality. The results show that titanium dioxide nanocoating reduce pollution inside buildings. Finally presents results, recommendations and future studies.

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: Ehsan Mostafa Kamal Date: 6 / 11 /2019

Signature: 

Dedication

I dedicate my dissertation work to my family and many friends. A special feeling of gratitude to my loving parents whose words of encouragement and push for tenacity ring in my ears.

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