
# Toward Net Zero-Carbon Buildings: Integrating Renewable Technologies in Architectural Design

By

Noha Omar Ismail Shawer

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

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**Title of Thesis:** **Toward Net Zero-Carbon Buildings: Integrating Renewable Technologies in Architectural Design**

**Key Words:** Zero Energy; Zero Carbon, Renewable Energy, Energy Efficient, Energy Conservation.

**Summary:**
Total energy and carbon emissions play and important role in formulating sustainable development strategies and growing the interest in ZEBs. This study review the works related to ZEHs strategies and the methods of integrating the renewable technologies with feasible way and take decisions in the architectural design phase to adopt sustainable architecture principles and create a comfortable architectural environment, and how to implement all of that on a local existing case study in Egypt and achieve zero consumption, and this through two strategies EEMs and RETs.

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# Dedication

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