



Cairo University

TOWARDS LOW COST GREEN BUILDING WITH LOW ENERGY CONSUMPTION

Case study: North Sinai El-Arish

By

Marwa Nossier Hamdan Nossier

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the Requirements for
the degree of

**DOCTOR OF PHILOSOPHY
IN ARCHITUREAL ENGINEERING**

FACUKTY OF ENGINEERING - CAIRO UNIVERCITY

GIZA – EGYPT

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Title of Thesis:

TOWARDS LOW COST GREEN BUILDING WITH LOW ENERGY
CONSUMPTION (Case study: North Sinai El-Arish).

Key Words:

Economic Green Building; Green Building; External Envelop Construction; Energy
Efficiency; Green Material.

Summary:

In this thesis has been focused on primarily cost of green building. The main element impact on primary cost is construction of the building. Additionally, decreasing the primarily cost of green building has been given attention to the energy consumption inside building and selecting the stabile material. Therefore, has been suggestion new construction system for green building made of plastic. Also, it has been tested the durability of it and studied ability use recycled plastic in the construction to save the environment. The cost of new block has been calculated and comparative with use traditional brick in the building. Additionally, it had been analyzed main geometric shapes which can decrease the total solar radiation on the external envelope of the building. The result approves that the cost of new construction lower than traditional building. Also, it helps on decrease heat transfer through the wall. Finally, the circle is satiable shape in Sinai building.

Acknowledgments

I acknowledge and thank the following individuals and organizations for their support of or participation in this research. Saudi Basic Industries Corporation (Sabic company) in Kingdom of Saudi Arabia for sharing their knowledge of the case studies. Jazan university for guidance and helping to achieve the company in Kingdom of Saudi Arabia. Science & technology center of excellence for helping in manufacture the new construction building (test blocks). Sinai university for performing testing in the laboratory of the university. The higher institute of engineering and technology in El-Arish for allowing to work in the lab. Egyptian international company for plastic (Sun Rise) for providing with information.

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