



Cairo University

**VERTICAL AND HORIZONTAL VEGETATION AS A  
TOOL TO INCREASE ECO-SKYSCRAPERS  
ENVIRONMENTAL EFFICIENCY.**

**CASE STUDY: RESIDENTIAL BUILDINGS**

By

**REEM MOHAMED REDA EL-TAHER**

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  
Architecture-Building Technology

**FACULTY OF ENGINEERING, CAIRO UNIVERSITY  
GIZA, EGYPT**

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**Title of Thesis :** VERTICAL AND HORIZONTAL VEGETATION AS A TOOL  
TO INCREASE ECO-SKYSCRAPERS ENVIRONMENTAL EFFICIENCY

**Key Words:**

Vertical greening systems, Green roofs, vertical farming, ecology, eco-skyscrapers, energy efficiency and atmosphere, water efficiency.

**Summary :**

Now the world change, especially after the impact of major oil crises in 1973/ 1979. This research is trying to bring a new way of thinking to understand the need of incorporating nature in the design as one of the aspects and new technologies for eco-design policy, which reduce the negative impacts of buildings and increase the environmental efficiency. By clarifying importance of integrating systems of vertical and horizontal vegetation into eco-skyscrapers, and learn how to develop green spaces in buildings.





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