



Cairo University

**DEVELOPING A METHOD OF BAKE-OUT TO IMPROVE
THE INDOOR AIR QUALITY THROUGH DISCHARGING
THE VOLATILE ORGANIC COMPOUNDS AT THE PRE-
OCCUPANCY STAGE.
CASE STUDY NEW RESIDENTIAL BUILDINGS AT
SUMMER IN EGYPT**

By

Tarek Mohamed Abd El-Hamid Mohamed Kamel

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
Architectural Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Key Words:

VOCs, IAQ, Bake-Out, Green coating product

Summary:

Volatile Organic Compounds (VOCs) are chemicals released into the air from numerous materials—some of them are natural, human made, plant-based, and from animals, including people. Prolonged exposure to high concentrations of some VOCs has been linked to a wide range of chronic health problems. So this dissertation is arguing and hypothesized a method to measure and reduce the VOCs emission concentration. While the result shows that the deduced VOCs concentration level are much higher than the set threshold limit values during the Bake-Out & Non-Bake-Out process and the larger volume of space the more emissions concentration of VOCs, either using products which are green or non-green.

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Tarek Mohamed Kamel

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