NUMERICAL SIMULATION OF SMOKE CONTOL IN UNDERGROUND CAR PARK BY JET FAN SYSTEM AND DUCTED SYSTEM

By

Eng. Mohamed Hassanin Ahmed Abdel Wahab

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfilment of the Requirements for the Degree of
MASTER OF SCIENCE
In
MECHANICAL POWER ENGINEERING

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Title of Thesis: **NUMERICAL SIMULATION OF SMOKE CONTOL IN UNDERGROUND CAR PARK BY JET FAN SYSTEM AND DUCTED SYSTEM**

Key Words: (Smoke Control-Jet fans- Ducted Exhaust system – Underground car park-FDS)

Summary:
The present work is a numerical simulation for smoke control in underground car park, simulation cases investigation aims to reach the proposed values of human visibility, air temperature, and air velocity by using the impulse ventilation system, and the ductwork system, taking into consideration several proposed designs of the IVS and ducted system by using a CFD software FDS Version 6.4.0. In the underground car park to examine the best performance of smoke extraction system, the present work contains nine cases of smoke control in the underground car park, by comparing the results with the requirements of the life safety, and smoke extraction patterns.

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