



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



HANAA ALY



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التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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NUMERICAL INVESTIGATION OF SMOKE MANAGEMENT SYSTEM IN A MOVIE THEATRE

By

Yousra Abdelreihim Hussein Toulan

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

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In

MECHANICAL POWER ENGINEERING

**FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Under the Supervision of

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Title of Thesis: **NUMERICAL INVESTIGATION OF SMOKE MANAGEMENT SYSTEM IN A MOVIE THEATRE**

Key Words: Fire Dynamics Simulator, Smoke Management System, Movie Theatre, Concentration of Carbon Monoxide, Visibility

Summary:

Smoke management system in all buildings received great interest as a way to decrease fatalities during fires as it prevents the spread of fire and provides a safe escape route for occupants. The smoke has many dangerous effects as it causes asphyxiation and death. Additionally, it reduces the visibility thus will lead to difficulty in the evacuation during the fire. This research provides a numerical study for smoke control in the movie theatre. This research investigates the effect of the fire source location in the case of the natural ventilation system on basic design parameters such as smoke layer height, concentration of Carbon Monoxide (CO), temperature, and visibility at different heights and different places in the movie theatre. Also, the effect of natural ventilation and mechanical ventilation on the same design parameters are studied.



Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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Date: / /2021

Signature:

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