

NUMERICAL INVESTIGATION FOR CONTROL OF SMOKE IN DOMED MOSQUES

by

Eng. Osama Mansour Selim El-Sayed

**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
MECHANICAL POWER ENGINEERING**

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Key Words: Large buildings, smoke control, Mosques, Domed, Fire Dynamics Simulator

Summary:

The study shows the effect of Heat Release Rate (HRR), fire location and natural vents location on visibility, carbon monoxide concentration, smoke layer temperature and evacuation time. The results show that increasing the HRR, reduces visibility, increase carbon monoxide concentration and increase smoke layer temperature at human level as a result it increase the evacuation time. Also, when fire takes place at the center of the mosque, the smoke speared is faster than that one in corner fire. Finally the results show that the best position of natural vents is to be at the ceiling which give a better conditions for the occupants according to NFPA 130.

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