

**FLOW REGIMES, THERMAL AND
HUMIDITY PATTERNS IN VENTILATED
ARCHAEOLOGICAL TOMB OF HOREMHEB,
VALLEY OF THE KINGS, LUXOR**

By

Eng. Ahmed Hamdi Abdel-Wahed Metwally Aggoor

**A Thesis Submitted to the Faculty of
Engineering at Cairo University in Partial
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MASTER OF SCIENCE**

In

MECHANICAL POWER ENGINEERING

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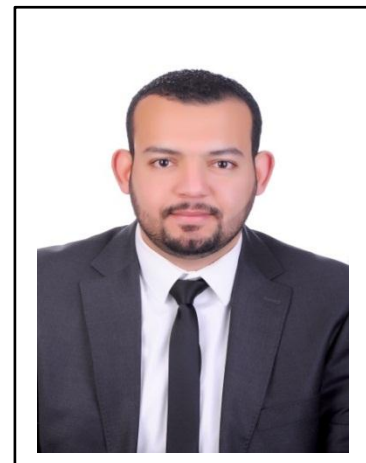
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Key Words: (Thermal Comfort – Ventilation – KV "King Valley")

Summary:

The discovery of the tomb of King Horemheb (KV57) is one of the greatest discoveries which were made before the discovery of the tomb of Tutankhamen (KV62) which was discovered on 25 February 1908. The tomb of Horemheb is another stage of the evolution of the royal tombs that is consist of two parallel axes. The present research targets to study the effect of mechanical ventilation systems on airflow patterns, in addition to relative humidity distribution and temperature inside the tomb KV57 and the thermal comfort prediction through this work was based on the PMV (Predicted Mean Vote) model and the PPD (Percentage Predicted Dissatisfied) model. The study was executed using computational fluid dynamics (CFD) simulation using a commercial CFD code. All mesh sizes that used in the present work went above 8,000,000 mesh volumes which allowed meaningful and better predictions of the flow regimes.



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