



#209	<div>Prof. Dr. Essam E. Khalil</div> <div>ASHRAE Fellow, ASME Fellow, AIAA Fellow</div>	
Title:	Professor of Energy. Cairo University, ASHRAE Director at Large	
email:	Khalile1@asme.org	
Presentation title:	<i>Smoke Management in Underground Tunnels"</i>	
<p>A mechanical ventilation system plays a major role in tunnels safety. Over the world, different ventilation systems regarding to the tunnel geometry and other parameters are used for tunnel ventilation in the normal and fire operations. The main concern is a proper smoke evacuation in a fire case. In this paper, we are studying the mechanical ventilation system in underground tunnel below Suez Canal -Egypt which was simulated using Fire Dynamic Simulator (FDS) version 6.2.0, and it shows an acceptable agreement with experimental data. The studied parameters included the temperature variation along tunnel length and the variation in temperature at different cross-sections and heights in order to assess the effectiveness of various ventilation scenarios at fire accidents within the tunnel. The results have been presented and analyzed to simulate an actual fire test inside some locations inside the tunnel.</p> <p>Three case studies simulated with different Heat Release Rate (HRR) of Heptane pool with 29MW, which equivalent to bus or truck fire, 67MW which is equivalent to plastic cups goods vehicles fire (HGV) and 119 MW which equivalent trailer with 8.5 ton furniture, fixtures and rubber tires [1]. The fire location is fixed at 105 m from tunnel entrance. Results illustrate the temperature contours at different cross sections at human level. This study shows that temperature at human level doesn't exceed 40° C.</p>		

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EDUCATION

- B.Sc. MECH. ENGINEERING, CAIRO UNIVERSITY- JULY 1971, DISTINCTION,
- MSc. MECH. ENGINEERING FROM CAIRO UNIVERSITY; FACULTY OF ENGINEERING, DEC.1973.
- Ph.D. IN MECHANICAL ENGINEERING. LONDON UNIVERSITY, IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY, UK. FEB. 1977.
- DIC, DIPLOMA OF IMPERIAL COLLEGE, LONDON UNIVERSITY, (1977).

POSITIONS HELD

- PROFESSOR OF MECHANICAL ENGINEERING, JUNE-1988, CAIRO UNIVERSITY.
- CHAIRMAN OF THE ARAB COMMITTEE OF HVAC CODE, ARAB LEAGUE, 2005 –
- CHAIRMAN OF THE NATIONAL COMMITTEE OF VENTILATION CODE, 2005-
- MEMBER ,COMMISSION E2 ,INTERNATIONAL INSTITUTE OF REFRIGERATION, PARIS, 2004-
- PRESIDENT "CONSULTING ENGINEERING BUREAU" CEB, 3 RASHDAN STREET, CAIRO.
- CONVENOR OF ISO TC 205 WG2 SINCE 2003
- ASHRAE NOMINATION MEMBER, REGION AT LARGE, 2007-2010
- MEMBER STEERING COMMITTEE IECEC, 2003- , TECHNICAL CHAIR 2009.
- MEMBER ASHRAE, INTERNATIONAL STANDARDS ADVISORY COMMITTEE, 2008-

PUBLISHED MORE THAN 830 PAPERS AND 10 BOOKS IN ENGLISH AND 3 IN ARABIC.

MAJOR PROJECTS

- Ventilation Of Tombs Of Valley Of Kings, Luxor, Egypt
- Air Conditioning Of The Archeological Christ Church And Coptic Museum, Cairo Egypt
- Air Conditioning System Optimization for The New Extension of Grand Mosque, Mecca, Saudia Arabia; (1500000 PRAYERS).

PROFESSIONAL SOCIETIES

- Fellow ESME, 1995
- Fellow ASME, 2003
- Fellow AIAA, 2008
- Member ASHRAE 1995
- ASHRAE Distinguished Lecturer, 2003