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Flow regimes in an open-roof air conditioned stadium

In this paper, research on developing air conditioning systems in playground zone of stadium by employing several kinds of technologies to cool the outdoor spaces. The most serious challenge of air conditioning in playground zone in stadium is difficult to control the temperature and humidity in the outdoor area and also the enormous energy needed by the cooling system to maintain thermal comfort conditions within the football playground area. The main task for the analyzed model was to ensure the better method to distribute air to achieve the human comfortable for players and reduce the cooling capacity of playground zone by covering this zone using a large sunshade to reduce the sun's rays and maintain the stadium's temperature. The technical aspect was addressed by developing an empirical mathematical model for the performance of stadium model. The system designed in Qatar stadium for conditioning and distribution air evaluates results by using Computational Fluid Dynamics (CFD) code to determine the best way to distribute the air inlets and simulating the flows in air to overcome the high temperature and humidity to reach the human comfort.

Biography

Essam E Khalil is the Associate Professor of Mech Engineering in (1982). He is the Chairman of the National Ventilation Code Committee in (2005). He is the Consultant Editor of the Arabic Program of McGraw Hill Book Company (1983-1988). He is the Ashare Director –At-Large, USA, 2016-2019.

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