

## **The Impact of Modeling Method of Moisture Emission from the Swimming Pool on the Accuracy of Numerical Calculations of Air Parameters in Ventilated Natatorium**

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**Abstract :** The aim of presented research was to improve numerical predictions of air parameters distribution in the actual natatorium by the selection of calculation formula of mass flux of moisture emitted from the pool. Selected correlation should ensure the best compliance of numerical results with the measurements&#39; results of these parameters in the facility. The numerical model of the natatorium was developed, for which boundary conditions were prepared on the basis of measurements&#39; results carried out in the actual facility. Numerical calculations were carried out with the use of ANSYS CFX software, with six formulas being implemented, which in various ways made the moisture emission dependent on water surface temperature and air parameters in the natatorium. The results of calculations with the use of these formulas were compared for air parameters&#39; distributions: Specific humidity, velocity and temperature in the facility. For the selection of the best formula, numerical results of these parameters in occupied zone were validated by comparison with the measurements&#39; results carried out at selected points of this zone.

**Keywords :** experimental validation, indoor swimming pool, moisture emission, natatorium, numerical calculations CFD, thermal and humidity conditions, ventilation

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