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CFD MODELLING OF THERMAL COMFORT IN THE PASSENGER COACH

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Abstract
This paper presents the results of numerical simulations of thermal comfort in a passenger coach. The numerical model with people's presence was developed and appropriate boundary conditions were prepared. The ANSYS CFX program was used for the simulations. The calculations were carried out for summer and winter conditions. The predicted mean vote (PMV), predicted percentage dissatisfied (PPD) and draft rate (DR) were calculated to assess the thermal comfort of passengers. The requirements of railway standards in terms of passenger comfort assessment were also verified. Based on the simulation results, it was found that the thermal comfort conditions of the passengers in the coach were not fully satisfactory, especially in summer.

Keywords: **Ventilation; Thermal comfort; CFD; Thermal and humidity conditions; HVAC.**