

DESIGN OF A DEFLECTOR TO IMPROVE AIRFLOW INSIDE URBAN BUSES USING CFD

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Abstract. The present work deals with the study of air circulation in urban buses in order to improve the indoor quality conditions. The COVID 19 pandemic showed that ventilation of environments plays a fundamental role in reducing the spread of the virus. In this context, most countries recommended the opening of windows to reduce the risk and also to improve comfort in cities with temperate climates. In the present work, a novel deflector is designed and simulated to increase the air circulation at low speed in city buses. The deflector is fully investigated using computational fluid dynamics with OpenFOAM. Firstly, a mesh convergence study is carried out and then different designs are evaluated. The results show that the incorporation of this small deflector in certain windows of the bus could improve the air renewal by more than 25%.