

MORPHOLOGY OF BUILDING DEVELOPMENT AS AN ELEMENT OF URBAN VENTILATION SYSTEM

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Abstract

Problems related to air quality in large urban agglomerations (e.g., high concentration of pollutants, the urban heat island phenomenon) make it necessary to take comprehensive measures to improve air exchange in urban areas. The paper concerns the relationship between wind phenomena observable in cities and the geometrical features of building development. The knowledge on the subject is already well-founded and has been intensively developed. Regardless, it remains relatively poorly applied to urban planning. Based on the analysis of source literature, the classification of features and spatial elements of building development that are crucial for ventilation is conducted in the following paper. Five different cities are also analyzed regarding how the air exchange improvement policy should be pursued through conscious building development shaping. The cities selected for analysis include Warsaw and Cracow in Poland, a large agglomeration of New Dehli in India, the experimental Masdar City in the United Arab Emirates, and the newly designed Jätkäsaaridistrict of Helsinki. Based on the example of the above cities, the paper investigates the possibilities of combining spatial features of building development that are essential to aerodynamics, in order to create effective ventilation systems.

Keywords: Sustainable City, Urban Heat Island, Urban Planning, Urban Ventilation Strategies.