

## ANALYSIS OF WIND CONDITIONS AROUND A BUILDING DEVELOPMENT AS A PART OF ITS FORM DESIGNING PROCESS, A CASE STUDY

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### Abstract

**Aerodynamic phenomena that occurs around building developments exert a significant impact on the quality of climate in cities. Environmental wind engineering is a dynamically developing field of knowledge that offers a chance to study and, in consequence, regulates the air flow around buildings and complexes of building developments. The following paper discusses the issue of wind conditions that may be experienced on pedestrian level. Such conditions should allow for a proper ventilation of city spaces, at the same time eliminating uncomfortable, sudden accelerations in the wind speed and wind turbulence.**

**The present paper discusses whether it is possible to include the above mentioned issues in the process of urban and architectural design of medium-high urban building development units on the example of a particular project. The paper is aimed to test the validity of the use of aerodynamic tests and the possibilities of their introduction in the conceptual phase of architectonic design. Design methods based on the realities of common practices and legal conditions in Poland have been juxtaposed to research methods in the field of aerodynamics. Experimental studies in wind tunnel, using oil visualization method have been applied, as such a method allows to promptly arrive at a qualitative identification of the airflow around the building on pedestrian level.**

**Keywords:** Architectural design; Airflow around Buildings; Air Stagnation; Bioclimatic Architecture; Environmental Wind Engineering; Urban climate; Wind Comfort.