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Wind-tunnel investigations of pressure distribution over high-rise buildings

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Abstract

This paper deals with the wind-tunnel investigations of high-rise buildings. In the first part, an overview of the developments in model testing, as well as the future trends, have been discussed. Particular emphasis has been placed on methods of evaluating wind loads of high-rise structures. The second part provides a description of the research, conducted at the wind-tunnel of the Council for Scientific and Industrial Research, in Pretoria, South Africa. The aim of this research was to determine pressure distribution over the façade of 208 m high Warsaw Trade Tower building. Wind tunnel tests were a part of a wider research project which also includes full-scale measurements and numerical simulations (CFD, FEM), in order to examine the possibility of application of wind action simulations in structural health assessment of high-rise buildings. An overview of this research project and expected results are described in the third part.