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LOCAL WIND PRESSURES ON STRUCTURES SITUATED IN GROUPS

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Current Codes of practice and Standards give no guide to the designer for assessing the wind load on structures in the nearby other ones. The paper describes others results of local pressures in simulated winds on trackside structures including proximity effects. The experimental work was carried out at the Boundary Layer Wind Tunnel,in the University of Zilina [1] [2] [3] [4]-[8].

2. Experinmental Techniques and Measurement

Wind speed and turbulance measuremnets

The wind speed and turbulence at the wind tunnel has been measured with hot-wire anemometers and analysed with a DISA equipment [5].

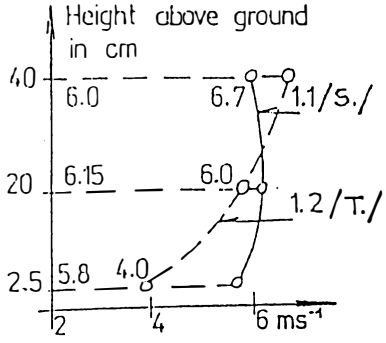


Fig. 1 Mean wind speed profiles

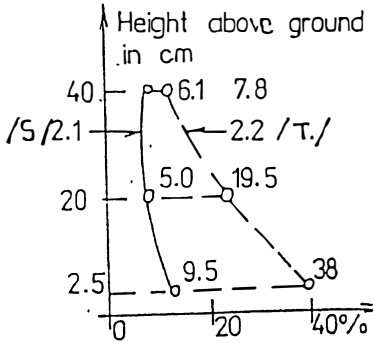


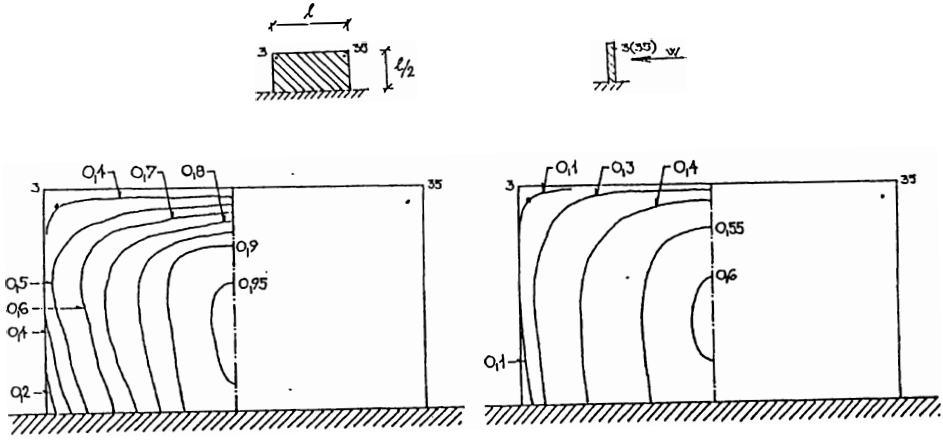
Fig.2 Turbulence intensity

Measurement of steady local pressures

Measurements of steady local pressures were carried out with inclined multi-tube manomneter. Models were made of plexiglas and instrumented with pressure taps. The pressures were converted to mean pressure coefficient form.

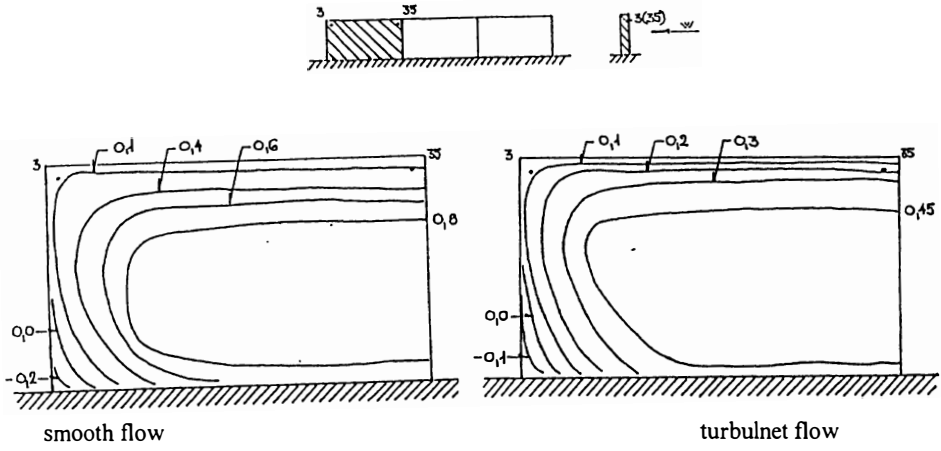
3. Experimental results on trackside structures

Some wind tunnel results of mean pressure coefficients on trackside structure models are shown in Fig. 3-7.



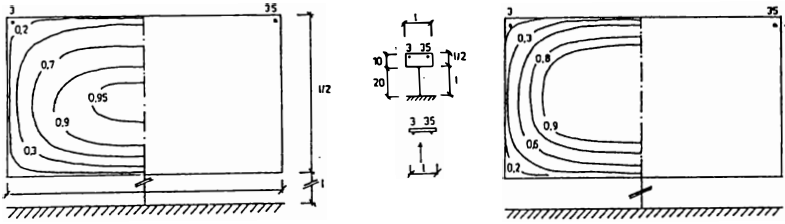
smooth flow turbulent flow

Fig.3 Steady local wind pressures on solid boundary wall



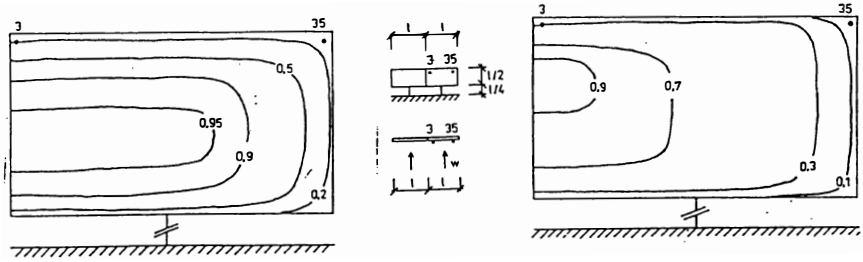
smooth flow turbulnet flow

Fig. 4 Steady local wind pressures on solid boundary wall in group



smooth flow turbulnet flow

Fig. 5 Steady local wind pressures on single signboard



smooth flow turbulnet flow

Fig. 6 Steady local wind pressures on signboard in group

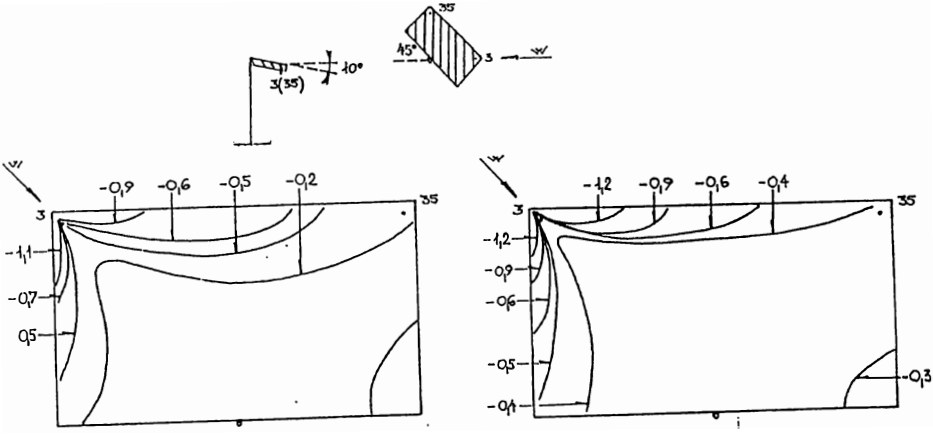


Fig. 7 Steady local wind pressures on a canopy roof

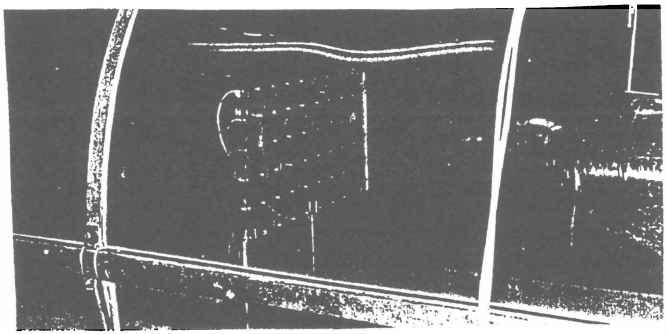


Fig. 8 Model of building in the Atmospheric boundary wind tunnel at the University of Zilina, Faculty of Civil Engineering, Department of Structural Mechanics

4. Concluding remarks

The wind tunnel results on trackside structure models in groups show on differences in local pressures for a single model in proximity others.

Acknowledgments

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