

**Recent advances in research on environmental effects on buildings and people / ed. by Andrzej Flaga and Tomasz Lipecki. – Cracow, 2010**

Spis treści

**TABLE OF CONTENTS**

**PART 1:**

**WIND CLIMATE AND WIND ACTION**

M. Sterling, C. Baker A re-consideration of some basic assumptions of wind engineering	11
N.R. Iyer Wind engineering research in India - current scenario and future needs	25
D. Lungu, R. Vacareanu, S. Demetriu Statistics of the maximum annual wind load in Romania	47
P. Martinez-Vazquez, M. Sterling, N. Rodriguez-Cuevas Design spectra for wind loading	55
A. Flaga Modelling of aerodynamical and mechanical characteristics of different types of wind rotors	65
S. Pichugin, A. Makhinko Reliability of steel lattice towers under stochastic along-wind load	97
A. Flaga, G. Bosak, Ł. Flaga, R. Kłaput, P. Matys Wind tunnel tests of aerodynamic interference of two bridge spans set nearby	107
A. Flaga, J. Bęc, T. Lipecki Dynamic wind analysis of the cable-stayed bridge in Wrocław	119
A. Flaga, T. Lipecki, J. Bęc The quasi-steady approach to dynamic wind action on footbridges	131
T. Nowicki, A. Flaga Empirical formulae for frequency and onset velocity of flutter for typical bridge decks cross — sections	143
A. Tesar Aeroelasticity of bridges with wind-screens	153
A. Flaga, Ł. Flaga Wind tunnel tests of aquaporine model exhibit	160

A.J. Bronkhorst, C.P.W. Geurts, B. Blocken, C.A. van Bentum Adverse local wind effects on neighbouring buildings	167
A. Flaga, G. Bosak, Ł. Flaga, R. Kłaput, P. Matys Investigation of the influence of wind on facade facings of Sky Tower in Wroclaw	177
R. Kinash, M. Branny Football stadium roofing model aerodynamic tests	185
C.P.W. Geurts, C.A. van Bentum Local wind loads on roof-mounted solar energy systems	195
P. Martinez-Vazquez, C.J. Baker, M. Sterling, A.D. Quinn Estimation of free flight trajectories of wind-borne debris using eigenfaces for recognition	207
R. Gnatowska Numerical method for detection of wind discomfort in built environment	217
<b>PART 2:</b> <b>SNOW LOAD AND SNOW TRANSPORT</b>	<b>225</b>
G. Kimbar, A. Flaga Similarity criteria of snow precipitation and redistribution and snow load simulation in wind tunnel	227
T.K. Thiis A model for the distribution of snow load on gable roofs	245
N. Taniguchi, T. Yukawa, T. Tomabechi Planning to reduce the need to remove snow in the case of detached houses in cold and snowy regions	257
J. Potac CFD simulation and full scale measurements of snow deposition on a triple-arch roof	267
T. Yukawa, N. Taniguchi, T. Tomabeehi Snow sedimentation around detached houses in cold and snowy regions	274
S.F. Pichugin, Yu.V. Dryzhyruk Snow load investigation for buildings of different heights	279
A. Flaga, G. Kimbar, J. Zych Case study of a natural disaster of icing in southern Poland in January 2010	287
T. Tsutsumi, T. Tomabechi, T. Chiba Field measurement of snowdrifts around buildings	295

T. Tsutsumi, T. Tomabechi Experimental study on effect of a high-rise building on roof snow load of surrounding buildings	303
D. Lungu, S. Demetriu, A. Aldea Statistics of the maximum annual snow load in Romania	312
<b>PART3: THERMAL, ACOUSTIC AND OTHER INFLUENCES ON BUILDINGS AND PEOPLE</b>	<b>319</b>
N. Plom Noise of wind turbine - presentation of the situation in Belgium	321
T. Kamisiński, R. Kinash, J. Rubacha, A. Pilch Analysis of the Lviv Opera Hall acoustics after the modernization	327
L. Tarczyński Thermal conditions of access of people to ventilated space of industrial chimneys	333
E.F. Gorokhov, V.N. Vasylev, S.G. Kuznetsov, G.A. Nazarov, E.A. Lozinskiy Distribution of heat emissions from the heating systems of residential buildings in a built-up area	341
A. Królikowska Impact of corrosion and anticorrosion on public safety, the economy and the environment	351
A. Zaborski Numerical modeling of coupled chemo-mechanical degradation of RC elements	361
Ł. Augustynski Effects of road traffic on the corrosivity of the atmosphere in the urban area	368
T. Wierzbicki The weathering steel in bridge structures - the experience gained through its application in Poland	379
P.L. Bonora Are buildings eco-compatible?	385
<b>PART 4: VIBRATION CONTROL, DAMPERS AND STRUCTURAL MONITORING</b>	<b>389</b>
K.C.S. Kwok, M.N. Michaels, S. Lamb Human perception and tolerance of wind-induced building motion	391

A. Flaga, M. Polak Non-linear numerical study of a single degree of freedom system equipped with a pendulum mass damper at its high vibrations amplitude	405
H. Ciurej, J. Kawecki, R. Masłowski Application of PSO algorithm to determine optimum damper 's parameters and position	417
P. Wielgos, A. Flaga Optimization of multiple tuned mass dampers parameters. The theoretical basis and numerical examples	423
Z. Siekierda, P. Wielgos, A. Flaga, T. Lipecki Tuned mass dampers with elastomeric limiters. Theory and research	433
T. Chmielewski, P. Górski Monitoring of tall structures and short, medium and long span bridges by GPS measurements	443
A. Flaga, Ł. Bednarski, R. Sieńko, M. Stoliński, P. Ćwiek, M. Szalasny Monitoring of the roof structure of the Municipal Stadium in Poznań	457
M. Wrona GNSS application for structural monitoring system	463
<b>Authors index</b>	<b>473</b>
<b>EEBPVI report</b>	<b>475</b>