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Interaction between architecture and structures designed by Waclaw Zalewski

Waldemar BOBER*

Sabina KUC[a]

* University of Science and Technology Wroclaw
Wybrzeze Wyspianskiego 27 50-370 Wroclaw, Poland
Waldemar.Bober@pwr.edu.pl

[a]Cracow University of Technology

Abstract

Waclaw Zalewski was the creator of unique structural solutions that made a significant contribution to shaping building solids. The design solutions proposed by him always took into account the architectural conditions of buildings. The structures that have been implemented surprise one with the diversity of form and the adjustment to the context of the place. At the same time, these projects are characterized by a very good technological fit that demonstrates deep practical knowledge in the use of structural materials. The design of structures by Zalewski was accompanied by widely conducted static analyzes and model studies. Preliminary studies of preparatory cases were conducted by Zalewski for small exhibition pavilions as well as for large sports stadiums. Concepts of structural solutions contain many creative solutions, many of which are hidden in the solid of the building and are not visible to an external observer. The paper contains analyzes of structural shapes of less known objects, which were shaped under the influence of concepts developed by Waclaw Zalewski.

The research achievements of Waclaw Zalewski are a perfect example of stimulating the creativity of designers in the field of shaping the structures of buildings. His research attitude has been formulated in the sentence: 'In short, creativity combined with the inspiring and simultaneously controlling it structural competence are at origins of most important decisions putting in motion any potentially optimal structural design' . To use this method it is necessary to study design creativity during his work in Poland and to use the heritage of his research work as a professor at MIT. The methods of shaping the structures developed by Zalewski were based on the current achievements of world researches in this field and always led to their practical use. This procedure is also visible in the presented topic of application in the construction of elements with static schemes associated with the cantilever beam. Analyzing the scientific path given by Zalewski to the author of this paper led to practical applications that found their description in the material presented below. The nature of this work is only a review and contains only a general description of researches related to the topic of the paper.