

Reduction of Dynamic Influences in Composite Rubber-Concrete Block Designed to Walls Construction

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Abstract : The aim of this paper is a numerical analysis of three-layered block design to walls construction subjected to the dynamic load. The block consists of the layers: concrete with rubber pads in shape of crosses, space filled with air and concrete with I-shape rubber pads. The main purpose of rubber inserts embedded during the production process is additional protection against the transversal dynamic load. For the analysis, as rubber, the Zahorski hyperelastic incompressible material model was assumed. A concentrated force as dynamic load applied to the external block surface was investigated. The results for the considered block observed as the stress distribution plot were compared to the results obtained for the solid concrete block. In order to estimate the percentage damping of proposed composite, rubber-concrete block in relation to the solid block the numerical analysis with the use of finite element method based on ADINA software was performed.

Keywords : dynamics, composite, rubber, Zahorski

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