

# **Delamination analysis of a multilayered structure with two rigidly joined members under bending and torsional shock load**

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Multilayer structural materials are very popular among engineers working in various fields of modern technology. The explanation for this phenomenon should be sought in their good material properties, which significantly exceed those of classical homogeneous structural materials. A natural disadvantage of multilayer materials is their relatively low resistance to delamination. This is the reason for the more limited use of these materials, especially in load-bearing structures with more members. This article studies delamination in a multilayer structure formed by two rigidly connected members. The structure is under a bending and torsional shock load resulting from a body falling on it. Part of the structure is delaminated. The strain energy release rate (SERR) in the structure under shock loading conditions is determined. A check is made using formulas from the research literature. An analysis is carried out to establish the dependence of SERR on a number of parameters of the structure and on the bending and torsional shock load. Graphs are presented illustrating the characteristic features of the delamination behavior of the structure.