



Analysis of the Characteristics of External Walls of Wooden Prefab Cross Laminated Timber

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Summary:

A balanced combination of heat flows creates suitable conditions for thermal comfort—a factor contributing to the quality of the internal environment of buildings. The presented analysis of selected thermal-technical parameters is up-to-date and suitable for verifying the parameters of building constructions. The research also applied a methodology for examining the acoustic parameters of structural parts of buildings in laboratory conditions. In this research, selected variant solutions of perimeter walls based on prefab cross laminated timber were investigated in terms of acoustic and thermal-technical properties. The variants structures were investigated in laboratory but also in model conditions. The results of the analyses show significant differences between the theoretical or declared parameters and the values measured in laboratory conditions. The deviations of experimental measurements from the calculated or declared parameters were not as significant for variant B as they were for variant A. These findings show that for these analyzed sandwich structures based on wood, it is not always possible to reliably declare calculated values of thermal-technical and acoustic parameters. It is necessary to thoroughly examine such design variants, which would contribute to the knowledge in this field of research of construction systems based on wood.

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