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Automation Determination of Heating Thermal Loading for Residential Buildings and Rational Thickness of Building Insulation

Subject actuality. One of the modern power management major directions is development of effective energy saving measures which allow saving power and financial resources. At the same time, the level of information technologies development allows to develop new software products, which facilitate calculations, provide high exactness of calculations and shorten time on their implementation.

Purpose of the scientific research is the development of software package for automated determination of the thermal loading of residential buildings heating and rational thickness of outward building insulation.

Research methodology. It was conducted the research with the usage of calculation method of the thermal loadings for residential buildings and software designed in Delphi.

Base material. The following tasks were considered: the software was chosen, the programs for the calculations of the thermal loading of heating for residential buildings, rational thickness of outward heat-insulation of buildings, effect from outward heat-insulation of buildings were designed, user-friendly interface was created.

The program peculiarity for calculations of the heating thermal loading for residential buildings is that initially information of calculation standard variant is presented in the numeric fields, which can be changed on information of the current expected variant. Basic data and results of calculation of the heating thermal loading of building together with the values of constituents of this loading are presented in the output window of calculation results.

At the energy saving measures estimation in the system of heating of buildings expenses settle accounts on fuel and heat-insulation depending on the thickness of heat-insulation. The rational thickness of isolation, which provides minimum expenses, is determined as the result. Expenses diminish due to the economy of thermal energy and fuel.

The usability of the developed software consists in possibility of results presentation in graphs, and also in the form of *.doc. report.

Conclusions and prospects of research results usage. The developed package of software is modern software product which provides exactness of the received results and save time calculations of the heating thermal loading of buildings and rational thickness of outward heat-insulation.