

Features of the Application of Building Compositions Based on Slag Binders

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Abstract

When forming a strategy for urban development, we analyze the state of energy consumption by residential, municipal and industrial buildings and establish a balance between consumed and produced energy. It is important to understand the state of energy generation by alternative and classical sources. For the design of new townhouses, there is no problem in placing equipment according to the heated area. In the case of renovation of old buildings and structures, it is worth objectively assessing the heated area and the place for installing new thermal energy equipment. The use of new commodity products based on local raw materials, especially ecological ones, is extremely appropriate and economically profitable. Testing of lithological and strength characteristics of new wall blocks is carried out in field and laboratory conditions. A review of modern world trends gives impetus to the analysis of the local raw material base. The use of slag components for concrete products gives certain technological and economic advantages. The compositions of dry gypsum mixtures and gypsum compositions are theoretically substantiated, taking into account the criteria for evaluating raw materials by activity coefficients. Based on building gypsum (48.5-68.5%), limestone flour (30-50%) and fly ash (0-20%) with the content of chemical additives, lime and fiberglass, a gypsum plaster mixture characterized by increased strength properties was obtained. The variation of residential, technological and agricultural premises according to microclimate conditions allows the use of slag-lime compositions for auxiliary premises. In general, this measure allows reducing the cost of the project by up to 34% in terms of the construction estimate.

Index Terms

Mixture, Lithology, Frost Resistance, Exploration, Cost, Slag Component