УДК 691

доцент, Отакулов Бахромжон Адхамович,

Ферганский политехнический институт

СТЕНОВЫЕ КОНСТРУКЦИИ ОБРАЗЦОВ ДОМОВ ИНДИВИДУАЛЬНОЙ СТРОИТЕЛЬСТВА И ИХ ТЕПЛО-ТЕХНИЧЕСКИЕ ПОКАЗАТЕЛИ.

Аннотация: *Одним из основных требований мировой экономики на сегодняшний день является переход на использование энергосберегающих материалов и технологий.*

Ключевые слова: *количество энергии, тепловые характеристики конструкций, перепад температур.*

docent, Otakulov Bakhromjon Adkhamovich,

Ferghana Polytechnic Institute

WALL DESIGNS AND THEIR HEATING AND TECHNICAL INDICATORS OF MODEL HOUSES BUILT INDIVIDUALLY.

Annotation: One of the main requirements of the world economy today is the transition to the use of energy-saving materials and technologies.

Key words: amount of energy, thermal performance of structures, temperature difference

One of the main requirements of the world economy today is the transition to the use of energy-saving materials and technologies. In energy saving, the main focus should be on the heat storage capacity of building structures. According to statistics, 90% of the total energy spent on construction is spent on heating buildings, 8% - on the production of building materials and products, and 2% - on construction work. Therefore, it is important to choose the materials and structures used in the construction of buildings, taking into account their

thermal performance. For example, according to various data, 40 to 60% of heat loss through wall structures, as well as the use of effective thermal insulation material per 1 m2 of surface can save up to two kilograms of conventional fuel. An analysis of the condition of individual model houses built over the years and their designs has revealed that this issue has not been well addressed. In particular, the walls of these buildings are made of traditional materials - ordinary ceramic bricks. In order to analyze the heat storage capacity of these wall structures, thermal-technical calculations were carried out. It is known that the process of heat transfer of building materials in the presence of temperature differences on their surfaces is called thermal conductivity, and the coefficient of thermal conductivity (λ , Вт/(м · ^{0}C) characterized by

The thermal conductivity is calculated by the following formula:

$\lambda = \delta/R_0$, Вт/м^{0}C

here, δ – material thickness, m; R_0 – thermal resistance of the material, m2 ^{0}C/Вт.

The ability of a building structure to retain heat is the thermal resistance of the materials used in its manufacture (R_0) determines The higher the thermal resistance value, the less heat the material loses. In general, the thermal resistance of a structure is the required thermal resistance, which is calculated using the following formula ($R_{т.э.}$) should not be less than

$$R_{т.э.} = \frac{(t_1 - t_2)n}{\Delta t_н} R_в, \ м^2 \cdot {}^0C/Вт.$$

here:t_1- indoor air temperature, ^{0}C; t_2- outside air temperature,^{0}C; n - a coefficient that takes into account the location of the outer surface of the wall relative to the outside air; $\Delta t_н$- the temperature that normalizes the difference between the air in the room and the temperature of the inner surface of the wall ^{0}C; $R_в$– heat transfer resistance of the inner surface of the wall, м^2 · ^{0}C/Вт.

In the projects of model houses, the outer walls of the buildings are 38 cm from ordinary ceramic bricks of 75 marks. (δ_1) construction in thickness and 2 cm with a sand-cement construction mixture of 25 marks on both surfaces. (δ_2) thick watering is provided.

According to current regulations, $t_1 = 18^0$C; $t_2 = -15^0$C;

$\lambda_{brick} = 0{,}81$ Вт/м^{0}C; $\lambda_{snow} = 0{,}93$ Вт/м^{0}C; $R_в = 0{,}115$ м$^2 \cdot {}^0$C/Вт; $\Delta t_н = 6^0$C.

In that case thermal resistance of wall construction:

$R_0 = \delta_1 / \lambda_{brick} + \delta_2 / \lambda_{snow} = 0{,}38/0{,}81 + 0{,}04/0{,}93 = 0{,}51$ м$^2 \cdot {}^0$C/Вт.

The required thermal resistance is

$$R_{т.э.} = \frac{(t_1 - t_2)n}{\Delta tн} Rв = \frac{(18+15)1}{6} 0{,}115 = 0{,}73 \text{ м}^2 \cdot {}^0\text{C/Вт. га тенг .}$$

Hence, the thermal resistance of the wall structure is less than the required thermal resistance value, ie $R_0 < R_{т.э}$ or $0{,}51 < 0{,}73$. This indicates that the materials selected for the wall constructions of standard houses do not meet the thermal-technical standards, their heat storage capacity is low, and cause moisture accumulation inside the wall, freezing and condensation of water vapor on the inner surface.

To eliminate these negative consequences, it is necessary to replace the building materials used in the construction of the wall with other heat-saving materials.

References

1. Абдукаримов Б. А. и др. Способы снижения аэродинамического сопротивления калориферов в системе воздушного отопления ткацких производств и вопросы расчета их тепловых характеристик //Достижения науки и образования. – 2019. – №. 2 (43).

2. Бахромов М. М., Отакулов Б. А., Рахимов Э. Х. У. Определение сил негативного трения при оттаивании околосвайного грунта //European science. – 2019. – №. 1 (43).

3. Юсупов А. Р. и др. К расчёту неравнопрочных термогрунтовых тел на сдвигающие нагрузки //Достижения науки и образования. – 2019. – №. 2 (43).
4. Мирзажонов М. А., Отакулов Б. А. Влияние на прочность контактной зоны рабочего стыка времени выдержки нового бетона //XLIII INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE" INTERNATIONAL SCIENTIFIC REVIEW OF THE PROBLEMS AND PROSPECTS OF MODERN SCIENCE AND EDUCATION". – 2018. – С. 22-24.
5. Мирзажонов М. А., Отакулов Б. А. Восстановление разрушенных частей бетонных и железобетонных конструкций //Достижения науки и образования. – 2018. – №. 13 (35). – С. 13-14.
6. Xalimjon o'gli S. J. Influence on durability of contact zone of working joint time of the endurance of a new concrete //EPRA International Journal of Environmental Economics, Commerce and Educational Management. – 2021. – Т. 8. – №. 5. – С. 1-2.
7. Abobakirovich A. B. et al. Increasing the efficiency of solar air heaters in free convection conditions //Достижения науки и образования. – 2019. – №. 2 (43).
8. Otakulov B. A., Abdullayev I. A., Sultonov K. S. O. RAW MATERIAL BASE OF CONSTRUCTION MATERIALS AND USE OF INDUSTRIAL WASTE //Scientific progress. – 2021. – Т. 2. – №. 6. – С. 1609-1612.
9. Tulaganov A. et al. Festigkeitsbeschreibung des schwerbetons auf alkalischlacken–bindemittel //The Scientific-Practice Journal of Architecture, Construction and Design. – 2021. – Т. 1. – №. 1. – С. 5.
10. Otakulov B. A., Abdullayev I. A., Toshpulatov J. O. O. IMPORTANCE OF HEAT-RESISTANT CONCRETE IN CONSTRUCTION //Scientific progress. – 2021. – Т. 2. – №. 6. – С. 1613-1616.

11. Otakulov B. A., Isoyev Y. A., Salimjonov J. H. O. G. L. ABOUT MONOLITHIC REINFORCED CONCRETE STRUCTURES IN CONSTRUCTION //Scientific progress. – 2021. – T. 2. – №. 7. – C. 722-724.
12. Otakulov B. A., Isoyev Y. A., Salimjonov J. H. O. G. L. THE SCIENCE OF BUILDING MATERIALS TAKES PLACE IN ARCHITECTURE //Scientific progress. – 2021. – T. 2. – №. 7. – C. 725-727.
13. Otakulov B. A., Isoyev Y. A., Salimjonov J. H. O. G. L. WAYS TO SAVE CERAMICS AND FIRE BUILDING MATERIALS //Scientific progress. – 2021. – T. 2. – №. 7. – C. 718-721.
14. Otakulov B. A., Isoyev Y. A., Sailimjonov J. X. O. G. L. IMPROVING THE EARTHQUAKE RESISTANCE AND HEAT RESISTANCE OF BUILDINGS BUILT OF MODERN ENERGY-SAVING MATERIALS //Scientific progress. – 2021. – T. 2. – №. 7. – C. 117-120.
15. Adhamovich O. B., Saydi-axmadovich Y. B. EFFECT OF POLYMERY MONOMORES ON THE STRENGTH OF OLD AND CONCRETE CONCRETES.
16. Adhamovich O. B., Nabijonovich A. N. M., Madaminova R. G. Q. THE ROLE OF MONOLITHIC REINFORCED CONCRETE CONSTRUCTION IN MODERN CONSTRUCTION //Scientific progress. – 2021. – T. 2. – №. 8. – C. 735-739.
17. Otakulov B. A. et al. WORKING JOINTS OF MONOLITHIC AND PREFABRICATED STRUCTURES AND METHODS OF OVERCOMING THEIR NEGATIVE CONSEQUENCES //Scientific progress. – 2021. – T. 2. – №. 8. – C. 731-734.
18. Otakulov B. A., Sobirova D. T., Yokubova M. T. Q. RAW MATERIALS AND OPTIMAL COMPOSITIONS FOR NEW GENERATION CELLULAR CONCRETE //Scientific progress. – 2021. – T. 2. – №. 8. – C. 473-478.