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STUDY OF THERMAL PROPERTIES OF EXTERNAL ENVELOPE

Abstact

The special place in the solution of this problem is allocated not only to new construction, but also the operated fund of residential and public buildings which thermal characteristics don't meet modern requirements. Decrease in energy consumption of the operated buildings can be reached by increase of thermal characteristics of the protecting designs.

Keywords: *Thermal, structure, energy efficiency, calculation, design, analysis, thermal protection, buildings.*

These building regulations establish requirements for thermal protection of buildings in order to save energy, while ensuring sanitary and optimum indoor climate parameters and durability of building envelopes and buildings [1].

Requirements for increased thermal protection of buildings and facilities, major energy consumers, are important objects for government regulation in most countries of the world. These requirements are discussed also from the point of view of environmental protection, rational use of non-renewable natural resources and reduce the impact of the "greenhouse" effect and reduce the emissions of carbon dioxide and other harmful substances into the atmosphere.

Fencing of a building must possess the required heat-shielding properties and to be sufficiently air-and water-resistant. In heat against the exterior of the building envelope must meet the following requirements:

a) to have sufficient heat-shielding properties, so it is better to keep a room warm in cold weather and to protect the room from overheating in summer;

b) the temperature on the inner surfaces, breathability and humidity outdoor enclosures should not exceed the permissible standards limits to avoid condensation, feeling the blast, the deterioration of heat-shielding properties and sanitary-hygienic conditions of the premises to be protected.

Designing outdoor enclosures built on the principles of limiting the amount of heat lost by the enclosure during the heating period and maintaining on the inner surfaces of the outer fence of the temperature at which the inner surface is not formed condensate [2].

This condition is necessary but not sufficient, since the definition of R_0, consider the technical-economic indicators. If the heat transfer resistance from the environment power saving $R>R$. the calculated resistance should be determined for the condition. In this case, R_0 greater than the minimum allowed R and more pertinent in economic terms. Knowing R_0 the surface of the fencing, it is necessary to check thermal properties of separate elements of enclosing structures (joints, outside corners, heat-conducting inclusions, etc.). A necessary and sufficient condition for this calculation is the lack of condensation on the inner surface of the structural member. To calculate heat losses and thermal conditions in the room often except for R_0 to calculate the reduced heat transfer resistance R "**g** fencing, which takes into account the two-dimensionality of the temperature field. After determining R_0 and "calculate the temperature field in the enclosure. Of particular importance for the evaluation of thermal barriers has temperature g' its inner surface. determines the possibility of condensation, which is unacceptable from hygienic point of view. The risk of condensation is greater, the greater the humidity indoors should not be below the dew point tp . The temperature distribution in the fence need to know when calculating its moisture conditions [3].

For buildings designed in southern areas, check the resistance of the fencing in design summer conditions. The thermal stability of the fence for the winter period is provided by performance conditions.

For filling window and door openings thermal insulation properties are governed only by the resistance of a design which should not be below required.

Moisture barrier properties of the fences must prevent waterlogging of materials due to atmospheric moisture and diffusion of water vapor from the room air.

Permissible air permeability of Windows, doors, joints structures, walls and ceilings of a building is determined by the rated resistance who is the spirit the penetration, air flow, additional costs of heat or lowering the temperature of the inner surface of the structure during infiltration.

The processes of heat transfer, moisture transport and air filtration is interconnected and one thing affects another. Therefore, the definition of heat, moisture and air protective properties should be done as a generic calculation of the required protective properties of cladding of buildings [4].

The temperature of the inner surface of the cladding structures (except vertical light transparent constructions) in the area of heat-conducting inclusions in the corners and window reveals, as well as skylights should not be below the dew point of the indoor air at design outdoor air temperature – t,°C, taken in accordance with the notes to the formula. Minimum interior surface temperatures of glazing for vertical light-transparent structures of buildings (except industrial) should not be below + 3 °C,for industrial buildings — not below 0 °C, and opaque window elements is not lower than the temperature the dew point of the indoor air, at rated ambient air temperature - t, °C, taken in accordance with the notes to the formula. The temperature of the inner surface of the cladding is tested according to the results of calculation of temperature fields of all zones with the thermal heterogeneity or on the results of tests in climatic chamber in an accredited laboratory. The calculated temperature of external air during the cold period of the year should be taken equal to the average temperature of the coldest five days security 0.92;the. Relative humidity of indoor air to determine the dew point should be taken:- for residential buildings, hospitals, dispensaries, outpatient clinics, maternity homes, residential homes for elderly disabled General children's schools, kindergartens, crèches, pre-primary (plants) and orphan homes — 55 % [4].

- for kitchens — 60 %;
- for bathrooms — 65 %;
- to warm basements and underground with communications — 75 %;
- for warm attics of residential buildings — 55 %;
-for the premises of public buildings (other than above) — 50 %.

Table 1 – Regulatory reduced resistance to heat transfer fillings of light apertures

Buildings and premises	Normative reduced resistance to heat transfer fillings of light apertures, $R_{отр}^{норм}$ m2 • ° C / W		
	degree-day heating season, ° C day	windows and balcony doors, windows and stained glass	lights with vertical glazing
Residential, medical and child care centers, schools, boarding schools	2000 4000 6000 8000 10000 12000	0.30 0.40 0.51 0.56 0.60 0.68	0.30 0.35 0.40 0.45 0.50 0.55
Community, other than the above, administrative and household, with the exception of the premises with a damp or wet mode	2000 4000 6000 8000 10000 12000	0.30 0.40 0.44 0.55 0.60 0.68	0.30 0.35 0.40 0.45 0.50 0.55
Community, other than the above, administrative and household, with the exception of the premises with a damp or wet mode	2000 4000 6000 8000 10000 12000	0.25 0.30 0.35 0.40 0.45 0.50	0.20 0.25 0.30 0.35 0.40 0.45

Intermediate values shall be determined by interpolation. The norms of the heat resistance of light-transparent enclosing structures for industrial buildings with humid or wet regime, with the

apparent excess heat of 23 W/m3, and for areas of public, administrative and residential buildings with damp or wet treatment should be considered for premises with dry and normal modes of industrial buildings. Reduced heat transfer resistance of a deaf part of balcony doors must be not less than 1.5 times the heat resistance of the light transparent parts of these articles.. In some justified cases related to specific design solutions fill window and other openings, may be applied to the design of Windows, balcony doors, stained glass Windows and lamps with the resistance to 10 % lower. Degree-day heating period (GSOP) should be determined by the formula GSOP = (tB – тот.TRANS) z from.per, where tB, see section 5.2, тот.feathers and zот.Perm.p. 4.5 [5].

Thus the temperature on the inner surfaces, breathability and humidity outdoor enclosures should not exceed the permissible standards limits reduce the influence of the "greenhouse" effect and reduce the emissions of carbon dioxide and other harmful substances into the atmosphere.

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ТҮЙІН

Берілген мәселені шешуде тек жаңа құрылысқа ғана аса мән бермей, сонымен қатар пайдаланылатын тұрғын және қоғамдық ғимараттарға, заманауи талаптарды қанағаттандырмайтын жылутехникалық сипаттамаларға да көңіл бөлу керек. Пайдаланылатын ғимараттардың энергия тұтынуын төмендетуге,қоршау құрылымының жылу техникалық сипаттамаларын жоғарылату жолымен қол жеткізіледі.

РЕЗЮМЕ

Особое место в решении данной проблемы отводится не только новому строительству, но и эксплуатируемому фонду жилых и общественных зданий, теплотехнические характеристики которых не удовлетворяют современным требованиям. Снижение энергопотребления эксплуатируемых зданий может быть достигнуто путем повышения теплотехнических характеристик ограждающих конструкций.

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ЭЛЕКТР ЭНЕРГИЯСЫНЫҢ САПАСЫНЫҢ АСИНХРОНДЫ ҚОЗҒАЛТҚЫШТЫҢ ЖҰМЫСЫНА ӘСЕРІ

Аннотация

Мақалада, тұтынушыларды электрмен жабдықтаудың анықтаушы сапасы, көрсеткіштері, тербелісі, ауытқуы және кернеудің симметриялы еместігі сияқты торап сипаттамаларының асинхронды қозғалтқыштың жұмыс жасауына әсер етулері қарастырылған

Түйін сөздер: *асинхронды қозғалтқыш, торап параметрлері, жиілік, кернеу.*