



MODERNIZATION OF BUILDINGS TO INCREASE ENERGY EFFICIENCY, COMFORT AND EXTENDED LIFETIME OF RESIDENTIAL BUILDINGS

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In this article, typical five-story buildings were designed and built according to the standards of half a century ago with the use of inefficient heat-insulating materials and the heat-technical characteristics of their fences meet modern requirements.

KEY WORDS: *real estate, modernization, buildings, significant, modern countries.*

INTRODUCTION

According to the studies, the problems of providing housing for the population RF, improving the quality of housing conditions, forming the urban environment most fully meeting the needs of modern man and society since the 20s of the past century have always remained significant. In modern Uzbekistan, he is not has lost its former relevance. Currently, the issue of reconstruction of the housing stock is acute. The theme of modernization of panel buildings in Uzbekistan, where erected by industrial by the method of the house make up 70% of the real estate fund, is of exceptional importance.

OBJECTIVES

Thousands of buildings built during Soviet times await reconstruction in cities of Uzbekistan residential areas. Typical five-story buildings were designed and built according to the standards of a half-century with the use of ineffective thermal insulation materials and heat technologies the physical characteristics of their fences do not meet modern requirements.

METHODOLOGY

It is necessary to note their obsolescence - planning solutions, external appearance buildings, operational characteristics for heat, hydro and noise insulation do not meet modern regulatory requirements and consumer qualities. One-step replacement of all inefficient buildings with efficient ones will allow get renovations or major repairs, as they can be carried out with complete or partial, temporary or permanent resettlement of residents, and most often without one. Lack or insufficient size of flexible housing stock forces to go to the superstructure and construction of buildings, insulation of their external fences, replacement of engineering equipment without evicting residents.

Reconstruction will increase the standard of consumer quality of housing on the secondary market and accelerate privatization, make the process of promoting housing utility reform, when the reduction in utility bills compensates for the increase in tariffs for energy consumption. Foreign experience reconstruction and modernization of low-rise residential buildings made of prefabricated designs, uses various technical solutions to help bring housing stock to the required level of living comfort, increase operational reliability of both construction and engineering systems, aimed at reducing heat losses, consumption of cold and hot water, control microclimate of premises in different seasons of the year.



The energy consumption of buildings depends on the level of thermal insulation qualities of the outdoor enclosing structures, space-planning solutions, ventilation systems and equipping with engineering equipment. There are important energy saving features in old houses, due to the fact that the low level of thermal protection enclosing structures is the main reason for the violation of comfort and over expenditure of energy for heating the building. The role of heat-shielding qualities of outdoor enclosing structures in the energy balance of a building during operation, as usually constant over time. Therefore, the main focus is hardly justified increase the thermal protection of fences, especially opaque ones, since with such the structure of the energy balance, an increase in resistance to heat transfer even by two (!) times will reduce the total energy consumption by only 12.5%. In the same time a much larger place (about half) in the energy balance of old buildings occupy the cost of heating the air, mainly in natural or mechanical ventilation.

At the same time, if we approach the problem more correctly energy saving, then the required level of heat-shielding qualities of insulated outdoor walls even for the same buildings could be taken differently. But it depends on how expedient it is to replace increased heat losses or vice versa the energy-saving effect of external walls on the energy-saving effect of others external structures of the building or on the effect of improving the operational regime.

The main difficulties in implementing this approach are related to the fact that the change heat-shielding qualities of external walls entails a change in their temperature humidity conditions, strength, durability, as well as complications in design fences. Due to the high degree of wear and tear of wooden windows in renovated buildings need to realize the energy-saving potential (up to 30%) of new designs of energy efficient windows, which are highly profitable (more 20%) with a technical solution along with the insulation of the outer walls of old buildings.

So thus, saving heat when introducing energy-saving measures can reach the houses of the first type series to be reconstructed in average 59%, including: -25% - due to increased thermal protection of external walls and attic floors in cold attics; decking or monolithic using fixed formwork from corrugated board on metal beams or reinforced concrete shells. The implementation of the entire complex of works ensured the receipt of housing stock, meeting modern requirements, contributed to the extension of the life cycle buildings and increasing their operational reliability. Reconstruction analysis showed that not only the restoration of the existing building is taking place, quality condition, but also obtaining additional housing space due superstructures of additional floors, extensions and inserts into the existing building.

SUGGESTIONS

In during the reconstruction process, the outer walls are insulated to the standard level of the building under reconstruction, major repairs or replacement of translucent fences and internal engineering systems with the installation of control and regulatory devices for heating, in water supply and gas networks. Thus, the need solving the problem of reconstruction and modernization of houses of the first mass series defined:

- Ubiquitous prevalence, relative homogeneity and social the importance of residential buildings of the first mass series;
- Past standard deadlines for capital repairs of these houses, which over the years of operation have undergone physical wear and tear of 15-20%, and significant obsolescence;
- Stock of bearing capacity of typical houses, as well as the first category capital with a life of 100 years;
- The economic feasibility of maintaining and increasing the size of the fund at the expense of superstructures and extensions of volumes during reconstruction

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