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Modern Building Activities in the Region of Moscow: Problems and Solutions

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Summary

Recent changes in Russian social and economic environments as well as their impact on town planning policy are discussed. The problems inherited from the command - administrative system, superimposed on a planning addressed-humanisation of built environment need urgent solutions which can now be reduced to three main points: new construction, based on modern human principles, abolishing of poor-quality mass panel buildings; saving and reconstruction of few-storey masonry buildings. The last problem is given a complex consideration in terms of feasible methods of reconstruction, allowing for their technical social city planning, architectural and financial aspects.

Keywords: city planning, existing buildings, addressed humanisation, built environment, reconstruction.

Presentation

Recent social and economic changes in Russia have led to reforms in town planning policy. For several decades it had reflected the processes, pertinent the command-administrative political system. At present, in the framework of developing market economy, new dynamic requirements to architecture and town planning, including space forms and structural systems, high-quality materials and built environment as a whole, should be met.

The new policy has to be conducted under a number of unfavourable factors, such as relatively low wage of the majority of population, still operating out-of-fashion panel producing plants, high rate of automobilisation, absence of living areas for citizens' re-accommodation from reconstructed blocks of flats as well as a lack of centralised financing etc.

Modern town planning in Moscow allows for most of these conditions; the document named "Major Goals for Town Planning in Moscow and Moscow Region till 2010" has outlined a programme of key social, economic and ecological problems of the mega-city to solve, aiming at

an increase in Muscovites' living standards. The problems mentioned need a complex solution in terms of both new construction and reconstruction of existing buildings.

A principle of "addressed humanisation of built environment" has been used as a basis for the new construction. Special attention has been paid to high architectural qualities of districts and flats, providing also all kinds of services, new jobs nearby etc. However the new rather expensive construction may provide but partial solution of the housing problem. Principal merits can be achieved by means of complex reconstruction as a triple task: to intensify city area utilisation; to upraise quality of existing buildings; to form sufficient areas for the re-accommodation.

It should be pointed out that most prestigious now zones of Moscow were developed during the "housing boom" of 50s and 60s and built by five-storey blocks of flats, made of prefabricated panels as well as of masonry. Living area of the zones reaches 20 million square meters, i.e., one ninth of the total one. These zones possess a complete city infrastructure: transport and supply systems, service objects, etc. A total cost of the territories is higher than the cost of poor-quality buildings themselves, many of which, by the way, have been badly maintained. Thus, the decision to abolish these blocks of flats has been made. However, the majority of the masonry "five-storeys" have been in a good condition, so their complex reconstruction is reasonable.

At first stage four methods of the reconstruction have been put forward, as follows:

1) superstructures and mansards on the masonry buildings
2) the same on a platform over the masonry (or the abolished panel) building
3) secondary building, expanding width and height of the existing one
4) parallel construction near the existing "five-storey".

The parallel construction promotes an application of traditional industrial construction potential. So called "starting" multi-storey (>10) panel blocks of flats are erected near the existing building to house its residents. Traditional type buildings are being built as the "starting" ones so far; however, it is clear that advanced high-quality projects should be applied in this case.

Reconstruction without the re-accommodation can be fulfilled according to 1) and 2). The first one is effective in elite zones of dense buildings, provided the bearing structures and foundation are of sufficient strength to bear extra 2-3 storeys. However, the increase of population in a district because of the reconstruction leads to overloads on supply systems, needs extra parking and sports areas, etc. A special study of the problem carried out at Moscow State University of Civil Engineering(MSUCE), aimed at a solution of this new complex task, including: optimal density of buildings and population; ecological expediency of the project; ultimate loads on existing structure and foundation; improved roof durability; reconstruction technique (without re-accommodation); illuminance, insulation, aerodynamics, noise regime, fire-resistance influence on architectural and planning parameters of the modernised buildings with superstructures and mansards; providing and modernising supply systems, areas for parking, waste elimination, etc. The analysis showed that effectiveness of the method is the higher the more active municipal investments. The results may be used as a base for design, legislative and technical standards as well as for cost determination (per 1 square meter).

The method of reconstruction, utilising reinforced concrete platform as a basement for the superstructure, seems very attractive in terms of private investments. After superstructure erecting and tenants' re-accommodation, the existing privatised panel "five-storey" can be dismantled and replaced with a high-quality building. Whether the superstructure is erected on a masonry building, either it or the building can be privatised depending upon the contract conditions.