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Innovative Approach to Urban Planning and Architectural Solutions in Creating a Microclimate around High-Rise Residential Buildings

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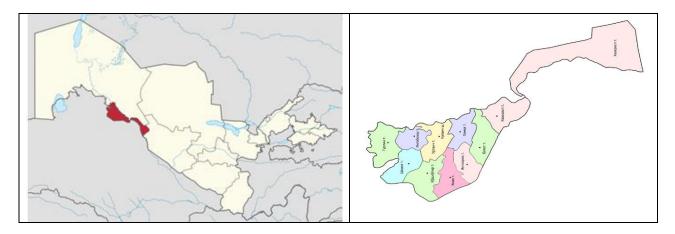
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ABSTRACT

The article describes innovative approaches to the organization of additional green areas around high-rise buildings in regions with a hot climate.

Khorezm region is located in the north-west of the Republic of Uzbekistan. According to the geographical location of the province, it is located between 40°-31° and 42° north latitudes and 60°-62° east longitude. Its territory is 280 km from north-west to south-east, and 80 km from west to east in the width where the city of Urganch is located. The northernmost point of the region corresponds to the Nuronbabo forest near the village of Olchin, Gurlan district. The southern end point is located a little south of Tuproqkala [3]

Khorezm region can be divided into two parts in terms of land structure: the large northern part, which is 100-110 m above sea level, and the remote southern part, which is 120-150 m above sea level.



In the north-west of the republic, on the left bank of the lower reaches of Amudarya. It borders the Republic of Karakalpakstan to the north and northeast, Turkmenistan to the south and southwest, and Bukhara region to the southeast. [1].

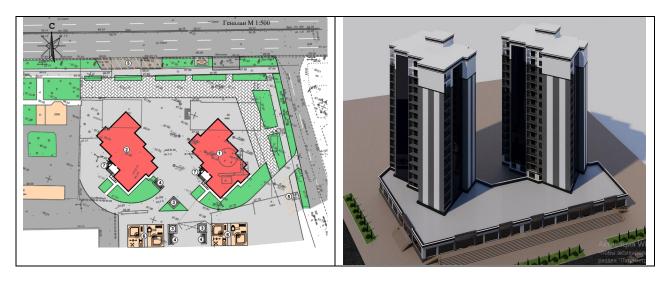
As a result of the permanent dispersion of the Aral Sea salts through the air, the impact on the landscape of the city and the salinity of the land require extremely high experience in growing trees. In addition to gujum and poplar tree species, which reach up to 12 meters in height, there is a great need to grow species that grow even higher.

As a result of the development of our society, the need for land increases, and the demand for housing increases, the ideas of longitudinal development of the city are becoming an urgent issue today. Therefore, in the future, it is necessary to implement the design of multi-storey residential buildings based on new innovative approaches to the normative rules of urban planning.

The growth of the population over the years is one of the requirements of today's society to build multi-storey residential buildings in order to provide them with housing in the future and save land. Therefore, the construction of multi-storey (16) residential buildings is being implemented in Urganch city. The Shavot canal passes around this building from a distance of about 100 meters. The lack of green areas in the area of building construction requires new innovative design proposals and new approaches to create a microclimate around this building during the heat of summer.

Khorezm climatic conditions are very hot in summer and very cold in winter. It is known from the research conducted in 5-story large-scale concrete buildings, the outer walls of which are not covered with basalt mineral slabs, that during the construction of buildings, it caused problems such as finding rooms for permanent living of the population and getting too cold in winter.

These houses are cast reinforced concrete structures. Each apartment will be fully gassed and will have an individual heating system. The outer walls of the building are covered with basalt mineral slabs in order to maintain a moderate climate in the apartments. It is planned to install one modern high-capacity elevator in the building



General plan and general view of a multi-storey (16) residential building

Innovative new approaches are highlighted in our proposed project, and if these innovations are put into practice, the issues of creating a new microclimate for the well-being of the population would be solved in the future. In the climatic conditions of Khorezm, in the master plan, it is proposed to design household service buildings or public buildings in the central part of high-rise buildings and to organize green areas on its roof. It would be possible to make walkways from the residential building directly to the green area in the proposed design proposal. On the other hand, it will be possible to achieve more efficient use of land. This design proposal allows the growth of trees at a high height to improve the microclimate on the street for residents living above the 10th floor of a 16-story building.



General view of a 16-story residential building [2].

It is clear to everyone that these project proposals, when analyzed in different areas, create different problems. Planting trees and the weight of the soil under them, the implementation of construction works that need to be isolated from water in construction works in the irrigation system, the impact of the forces generated by the vibration of trees on the building, the impact of the loads falling on the roof on the cost of the building and other factors are required to be taken into account.





Project proposal for the construction of utility or public buildings in the central part of highrise residential buildings and the organization of green areas on its roof.

In the future, we will conduct scientific research on finding economically effective solutions to these influencing factors and continue research on the study of world experience.

Books:

- 1. https://qomus.info/oz/encyclopedia/x/khorazm-viloyati/
- 2. https://mc.uz/kop-qavatli-uylar/