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ARCHITECTURAL AND PLANNING SOLUTION FOR THE AREA

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Abstract: *Along with the important problems of creating a microclimatic environment in the architecture of makhalla centers, the issue of aesthetics is also of great importance for urban planners and architects.*

Keywords: *Makhalla center, street, settlement, alley, recreation park, landscaping.*

Before designing a residential area, it is necessary to determine its place and significance within the city where it is located. This, in turn, requires an understanding of the city itself and cities in general, and a study of their characteristics.

Multi-story buildings not only meet the housing demands of the population but also give the city a distinctive appearance. Modern multi-story residential buildings are distinguished by their compactness, brightness, convenience, availability of amenities, and, most importantly, their contemporary design. Over the past decade, a number of modern multi-story residential buildings have been erected in the cities and urban centers of our republic. The increasing number of these buildings year by year serves to improve the living standards of the population.

Placement of Functional Zones. The sanitary protection zone protects the residential area from harmful gases, unpleasant odors, dust, and vehicle noise emanating from industrial areas and busy roads, and is located between them.

Drinking water facilities, wastewater disposal sites, garbage dumps, cemeteries, etc., should be located at least 0.5–1.5 km away from residential areas, downstream of water flow and downwind.

Multi-story buildings are typically placed on central streets and around squares. When locating construction areas, the terrain, the depth of groundwater, and the soil composition are taken into account.

Placement of Public Squares and Street Networks. A public square is a part of a residential area where administrative, cultural, domestic service, trade, public catering, and other main public buildings are located. These buildings are situated on the public square or along main streets. The public square is considered the center of the residential area and its architectural composition. In general, small agricultural settlements may have only one public square.

When planning the street network, the convenience of residents' movement to and from production areas is considered. To maintain cleanliness and ensure safe

transport movement, streets within a settlement are not merged with busy roads. The terrain is taken into account when planning streets to ensure that rainwater and snowmelt drain out of the settlement.

Conditions for the Placement of Main Parts and Elements of a Settlement. The concept of organizing a settlement area involves the placement of design elements within that area – streets, public squares, blocks, individual plots, residential houses, public buildings, industrial buildings of the farm, alleys, recreation parks, and landscaping elements (drinking water and wastewater networks, electricity, telephone, etc.), as well as other engineering structures. In this context, individual small plots, buildings and structures, green spaces, and various small elements can be located within blocks and squares. Therefore, streets, squares, and blocks are considered the main elements of a settlement design.

When placing the main, functional parts and elements within a settlement, the following economic, sanitary-hygienic, construction performance, and architectural requirements are taken into account:

- The settlement should have convenient connections with other settlements, cultivated areas, and processing enterprises of the economy.
- Yards within industrial areas should always have production connections with each other, and rational use of farm lands should be considered.
- Future expansion of the settlement is taken into account.
- Construction and landscaping costs should not exceed standard indicators.
- It is advisable to locate large water bodies, recreation parks, at the edge of the residential area. This is because the network of engineering structures would otherwise be extended.
- The settlement should be located only on one side of railways, busy highways, ravines, and large canals.
- During the design process, special attention is paid to the beauty of its composition and its connection with the surrounding environment.

The architectural and planning solution for the makhalla area is divided into zones:

- **Residential zone** (residential areas, special areas);
- **Public and business zone** (daily necessities and grocery stores, makhalla center, preschool education institutions, school areas, and medical examination departments, etc.);
- **Recreation zone** (sports fields, promenades, cinemas, concert venues);
- **Industrial, engineering, and transport infrastructure zone** (communication transport areas connecting all service zones, utility warehouses,

waste disposal areas, engineering network areas, parking for special vehicles, small industrial enterprise areas).

- **Special purpose zone** (cemetery area, short-term and long-term treatment center areas, forestry area).

Sanitary distances between residential areas and industrial yards and complexes

Table 1

Harm Categories	Names of Yards and Complexes	Distance to Residential Area (m)
I	Warehouses of toxic services exceeding 500 T	1500
II	Poultry complexes exceeding 400 thousand birds	1200
III	Dairy complexes up to 1200-2000 head of cattle	500
	Fattening complexes up to 1000-5000 head	500
IV	Dairy complexes up to 1200 head of cattle	300
	Warehouses of toxic services up to 100 tons	300
V	Veterinary points	200
	Mineral fertilizer warehouses	200
VI	Warm plots and greenhouses on biological fuel	100
VII	Machine-tractor complexes	50
	Food, construction yards	50

Methods for Improving the Modern Formation of Makhalla Centers.

Artistic and Architectural Features of the Composition of Makhalla Centers. Along with the important problems of creating a microclimatic environment in the architecture of makhalla centers, the issue of aesthetics is also of great importance for urban planners and architects.

Makhalla centers include mosques, ayvans (verandas), schools, hujras (cells/rooms), khanaqahs (sufi lodges), chillakhanas (places of forty-day seclusion), teahouses, minarets, shiypons (covered sheds), sufas (elevated platforms), and green spaces around ponds.

Comparison of measurement results for different project types of makhalla centers with historical structures (i.e., closed, semi-closed, and open design structures) showed that microclimatic conditions are more favorable in semi-closed structures, which provide conditions for horizontal and vertical ventilation of the courtyard in closed design structures.

The means and elements creating a microclimatic environment in the architecture of makhalla centers, the foundations of these means and their effectiveness, their application according to the time of day, building orientation, and the architectural-design type of the makhalla center serve to improve the microclimate.

Current Problems of Makhalla Centers. Research into the development paths of makhalla centers within the urban planning system of cities, their compositional-environmental qualities, and other architectural features leads to the conclusion that the objects under study are not only unique objects in Oriental architecture but also hold great importance in modern urban planning practice.

The architectural-planning system and the main components of makhalla centers need to be identified. This includes composition, volumetric-spatial dimensions, functional zoning, etc.

The historical and modern development practice of makhalla centers, as well as scientific research on their construction and regeneration, contribute to solving the following issues:

- Architectural-planning solution of the composition, taking into account national traditions and the established landscape system.
- Placement of makhalla centers utilizing traditional service conveniences.
- Using makhalla centers for their initial functions and for conducting new cultural, educational, and recreational activities.

The selection of these principles in urban planning relations is determined by creating a complex system that provides convenience to the population, economical use, improving the architectural appearance of makhalla centers, forming the surrounding environment and cultural-domestic service structure, and carrying out landscaping activities in the area.

To find rational methods for organizing makhalla centers, it is first necessary to restore their lost advantages and pass them on to future generations. All of this is reflected in scientific research methods.

As we know, the preservation of historical monuments, especially their integral parts within the life process, is carried out by linking the preserved object to the living system without it separating from the social structure. This leads to the following conditions:

- Modern requirements should not affect the initial compositional-spatial, planning, constructive, and architectural artistic structure.
- New functional features should facilitate the integration of the makhalla center into the modern environment and correspond to its cultural

and aesthetic value. It should be connected with the life and culture of the local population, as well as the system of social life.

As can be seen, in this situation, the problem of rational use of cultural monuments is paramount. As a result of active scientific research, the essence of the object should be revealed to the general public.

In the process of scientific research, the urban planning situation of makhalla centers, based on the needs of society, is studied. Such requirements serve as a basis for studying the urban planning role of the object being reconstructed.

It is necessary to know the needs of society and determine the attitude of the population towards the components of reconstruction. The research consists of two stages. The first stage consists of two groups:

- Defining the goals of reconstruction based on social demand. That is, implementing the traditional functions of makhalla centers, restoring their primary cultural and educational aspects. Social needs are determined in the first stage through physical parameters (area, volume, number of places, and domestic services); in the second stage, through a complex of aesthetic characteristics (composition, integrity, wholeness, etc.).
- The most rational planning system of makhalla centers is determined by the increase in tasks, planning dimensions, scope of influence, number of makhallas served, their use by the population, etc.

The second stage is the preparation of sketches and brochures based on the upcoming tasks. In addition to reflecting the problems that have arisen in the sketches, proposed drawings and photographs can also be included. Based on the selected sketches, work on the full reconstruction project begins.

The satisfactory functional aspects of makhalla center architecture have been identified. These are: administrative-management, cultural-educational, trade and economic, sports and health, recreation and meaningful leisure activities. In studying and systematizing the results, the structure of rooms was determined based on functional tasks.

The solution for the makhalla center creates an opportunity for a completely different kind of idea for enjoyable leisure time, for a return to religious and educational life, for various types of recreation, for sports and artistic clubs, and for engaging in art and religious activities. This takes into account the needs of all segments of the population, both young and old.

List of Architectural and Planning Solutions for the Area. The list of locations, their functions, and spatial requirements based on their dimensions are given below. Students will elaborate on the details and propose an urban planning project assignment based on this list. Any individual proposals for additions, based on their personal analysis and observations, will be accepted.

The area of the land plot, the living area, is assumed to be 16 m² per person (13-18 m² per person).

The proposed makhalla area plan includes 6 five-story buildings with single-story underground parking for each entrance, and separate elevators are designed for each entrance. A modern private school with a capacity of 1000 students and a kindergarten for 450 children are designed. All engineering geological survey works have been carried out during the design of the city center, and the climate and conditions of the area have been studied.

Placement of functional areas in the total area (492 hectares)

Figure 1: Makhalla area

Figure 2: Project of the allocated area in the makhalla

Street-Road and Pedestrian Network Planning. In the zone of multi-story buildings, narrow streets with a width of 5.5 m, two traffic lanes, and sidewalks of 1.5 m width should be adopted for groups of residential buildings with a population of more than 3 thousand people.

It is not allowed to adopt narrow streets with one-way ring traffic and a length of no more than 300 m with a width of 3.5 m for one traffic lane, even with sidewalks. In single-lane narrow streets, it is necessary to provide turning areas with a width of 6 m and a length of 15 m at intervals of no more than 100 m.

The radii of turns of street and road carriageways should be taken as at least 15 m from the edge of sidewalks and dividing roads. In reconstructed cities, in already formed construction, this radius can be reduced to 5 m.

In conditions of reconstruction, in single-story construction, it is allowed to combine the sidewalk with the path along the building foundation in the cross-section of residential streets and narrow streets.

The width of pedestrian crossings from the street carriageway should be at least 4 m.

The longitudinal slope of sidewalks can be at most 60% when the length of their sloped part does not exceed 30 m.

On large and long slopes, it is necessary to provide for the construction of stairs. Sidewalks must ensure the movement of children's and disabled persons' wheelchairs in accordance with the requirements of ShNQ 2.07.02.07 - "Designing the environment for human life and activity taking into account the needs of disabled persons and low-mobility groups of the population."

In residential, public, and recreational areas, pedestrian paths accessible to mechanical wheelchairs should be provided. [1]

Calculation of Storage Places for Personal Vehicles of the Population. The number of cars is determined based on the car ownership norm for the population of a small district. According to statistical indicators for 2023, Samarkand region accounts for 96 cars per 1000 people (or 1 car per 10 people).

For open areas, an average of 25-50 places, at least 10, and a service radius of 200 m are allocated, and this place is determined as follows: [1] [2] [3]

An area for short-term (up to 1 hour) car storage is allocated in front of the micro-district shopping center. Storage areas for construction debris and cars are placed at a certain distance from houses, public, and children's buildings by planting dense trees, observing sanitary norms (ShNQ 2.07.01.23).

Master plan of the project area M 1:1000

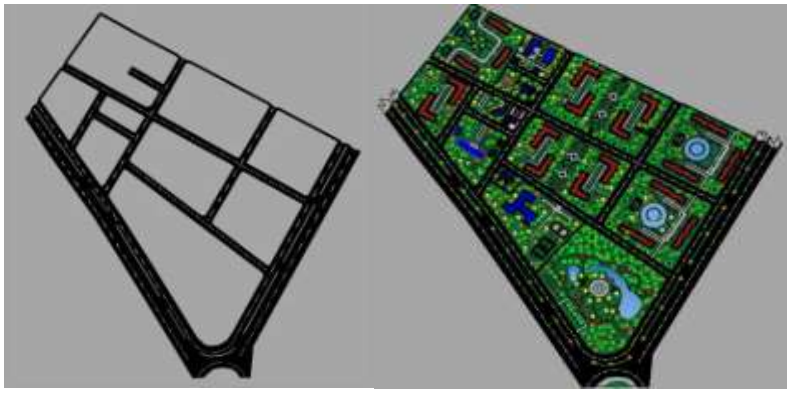

Figure 4: Master plan of the project area M 1:1000

In modern national urban planning, two problems arise in the field of makhalla centers: firstly, the regeneration of makhalla centers in the historical urban environment; secondly, the creation of small public centers in the construction of new residential areas. In both cases, the formation of new social communities, the

re-establishment of traditional community life, requires the following classification of structures within makhalla centers:

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