

Method of reconstruction of Samara yard in educational designing

V L Pastushenko, O S Rybacheva and P V Slastenin

Samara State Technical University, 244, Molodogvardeyskaya st., Samara, 443100, Russia

E mail: ps_ab@mail.ru

Abstract. The authors consider the method of reconstruction of the development of the central part of Samara, based on historical planning structure of quarters. The features of forming architectural-planning organization of Samara yard space as planning the quarter planning module are analyzed. Project goals, which solution is going to contribute to the preservation and tactful renovation of the existing environment, are determined. The method of experimental-search design is demonstrated on course projects of ASA SamGTU 3rd grade students, which are taken as an example. The proposed algorithm for the restoration of homing yards (households) includes the preservation and restoration of valuable and capital buildings, the replacement of farm buildings with new facilities, the replenishment and restoration of lost fragments of buildings, and modern landscaping of the courtyard. As a result of an experimental search design necessity for a number of regulatory requirements to ensure authentic reconstruction and renovation of the historical environment is identified.

1. Introduction

Recently, the topic of reconstruction of quarters of historical part of Samara is really relevant. The most acute problem for preservation of the scale of the environment and planning structure of historical quarters is that lack of adequate reconstruction regulations that are considering specificity of the space organization and existing building options. The modern practice of construction in the conditions of reconstruction of Samara historical quarters is to replicate typical multi-storey house sections of the "microdistrict" type while completely ignoring the context of the historical environment. While the world and Russian experience in reconstruction shows examples of another approach – tactful implementation of new construction into historical structure of the city [1].

2. History research

Samara yard, as a structural unit of the quarter, inherited the boundaries of former households. The architecture and space of the courtyard were formed under the influence of changing social and economic conditions [2]. Before the revolution of 1917, the yard was planned and built up by one owner, then, after the nationalization of private property, it turned into a semblance of communal multi-unit settlement. As such, the courtyard existed and developed within the boundaries of pre-revolutionary space to our time [3]. In Architecture of Samara's courtyard numerous spatial and functional transformations of its environment are presented, which are a materialized embodiment of the history of life and life of generations of people. This non-invented environment has unique



architectural and artistic qualities and graphically represents the evolutionary process of the quarterly development of Samara during the 20th century [4].

Let us consider in more detail the result of the evolution of the spatial planning structure of the courtyard during the Soviet Union period. The entire yard was divided between residents on an equal footing. Each family had its own barn, garage or front garden with a flower bed. A common occurrence in the courtyards was the organization of places for general meetings of the inhabitants, where they could gather for communication. The building of the courtyards was formed mainly by one-, two- and three-story houses. In each house lived several families. This fact led to the appearance of separate entrances to the apartments on the first and second floors and the emergence of such architectural elements as attached vestibules, open and closed stairs and galleries (Figure 1). The norms of living space per person were minimal, which contributed to a high population density, therefore residents were forced to independently "improve" their living conditions and expand their personal space through all sorts of outbuildings and superstructures, the installation of glazed verandas and open terraces, which were added to the old pre-revolutionary buildings and outbuildings. As a rule, such "reconstruction" was carried out from improvised materials and had an individual "architectural and artistic" tractor, which was a completely unique look (Figure 2). The result of such a development of the environment of the Samara courtyards was the formation of the original internal space of historical quarters - a phenomenon that demonstrates the uniqueness of the architectural and planning structures of courtyards in each individual case. So the traditional Samara courtyard turned out to be a characteristic architectural and spatial element of the urban planning fabric of Samara and, thanks to this fact, the environment of the central historical quarters of the city gained its authenticity.



Figure 1. Example of individual entrance to the apartment on the 2nd floor.



Figure 2. Space of Samara courtyard.



Figure 3. Brandmauer - the border of neighboring households.



Figure 4. Courtyard space with a three-part planning structure.

The courtyard, as a structural unit or planning module, defines the characteristic features of the planning organization of the quarter as a whole. Depending on the location in the structure of the quarter, several spatial-planning types of courtyards are formed. The yard is in a corner position, the private courtyard is narrow and the private courtyard is wide. The planning organization of the Samara courtyard has a number of characteristic features: the main building of the courtyard faces the red line of the quarter's development and, thus, forms a dense perimeter that separates the space of the courtyard from the space of the street; all courtyard buildings face the neighboring sections with solid brick walls – brandmauers (firewalls), windows and doors of courtyard buildings open into the courtyard (Figure 3); courtyards can have a one-part, two-part and three-part structure of the internal space (Figure 4); the interior space of the courtyards is formed by the volumes of residential buildings with characteristic elements: wings, attics, terraces, galleries, open staircases and outbuildings.

The architectural aesthetics of the «Samara yard», its architectural «design» and «spontaneous renovation» directly depend on the tastes, preferences and construction capabilities of its inhabitants. The internal environment of the courtyard, as well as the material texture of space, are in a state of permanent transformation and are represented by objects and materials that reflect the entire historical context of its existence [5]. Here you can find the red-brick facade of the 19th century, and an open gallery of aged silver pine, and a stained-glass window with thin imposts of the early 20th century, and a garage made of silicate brick, covered with galvanized metal of the Soviet Union era. Uninvented scenes of the Samara courtyards - «urban interiors», appeared largely without the participation of the architect and demonstrate unique patterns of environmental culture of the historical part of the city.

3. Results

The Samara yard is a communal cell of a city block with many neighboring entities. This fact largely determines the mechanism of formation of its space. Therefore, for a continuous authentic reconstruction of the distinctively formed environment of the Samara court, it is necessary to reproduce the conditions that determined its appearance. These conditions include: the need to preserve the ownership structure in which there are several owners of real estate (houses or apartments) in each yard; the need to comply with the regulations for the spatial parameters of newly constructed objects as co-existing with the existing building of the yard; the need to maintain continuity in the multifunctional use of buildings in neighborhoods and courtyards (combining residential and public functions).

4. Pilot project

Due to the lack of a real order for the reconstruction of neighborhoods while maintaining the existing planning structure of households, it becomes urgent to develop a reconstruction methodology based on experimental design with students [6]. The purpose of this design is to search for alternatives to the existing design practice of approaches based on tactful selective reconstruction of fragments of quarters within the boundaries of existing and functioning households (courtyards). The algorithm for the permanent reconstruction of neighborhoods, proposed on this basis, will make it possible to restore and update buildings, restore architectural monuments, modernize the intra-quarter engineering infrastructure, increase the efficiency of the use of the territory and preserve the «Samara yards».

The design assignment for the training project for the reconstruction of the Samara courtyard was based on the above-mentioned “regulations” and a social structure of living – one house for one, two or three families – was modeled similar to the historically established ones. Beyond the boundaries of project development, the planning boundaries of existing courtyards were taken. Such an approach made it possible to reproduce in the project many architectural features of the traditional environment that appeared evolutionarily, and to rethink them in the context of reconstruction techniques.

Work on the project was carried out in two stages. The first training project was named «Reconstruction of Samara yard. Analysis of the current state». The purpose of the first stage was to get acquainted with the design object: measurements were taken. The photofixation was carried out, the capitality and value of the building, its functional use was determined, the architectural qualities of

the environment and materials were analyzed. The result of the study was presented in the form of analytical diagrams and drawings - a master plan, cross-sections of the courtyard's internal space and scans, material selection (photos from the place). The graphic presentation was complemented by a 1:50 scale layout. As a result of the first stage, the yard reconstruction strategy was determined: an unchanged planning framework consisting of valuable and capital buildings and replacement buildings was identified, the reserves of the territory, as well as the main architectural and planning parameters of the space, were determined as regulations for future design (Figures 5, 6).

The second stage was the reconstruction project. It was named «Reconstruction of Samara yard. Project proposal». In the design process, the main difficulty was represented by issues related to compliance with the standards of insulation, lighting, compliance with fire and sanitary requirements. Architectural solutions of new objects were integrated as much as possible into the context of the reconstructed environment, but at the same time they did not imitate the techniques of the old Samara architecture. On the other hand, modern architectural techniques easily adapted to the material context of the space of the Samara courtyard and the interpretation of the architectural space of the yard as a space of complex organization, multi-level and flowing. The structure of the course project included a complete set of basic projections - plans, facades, sections; diagrams explaining the design decision; visualization of courtyard spaces and layout (Figures 7, 8).

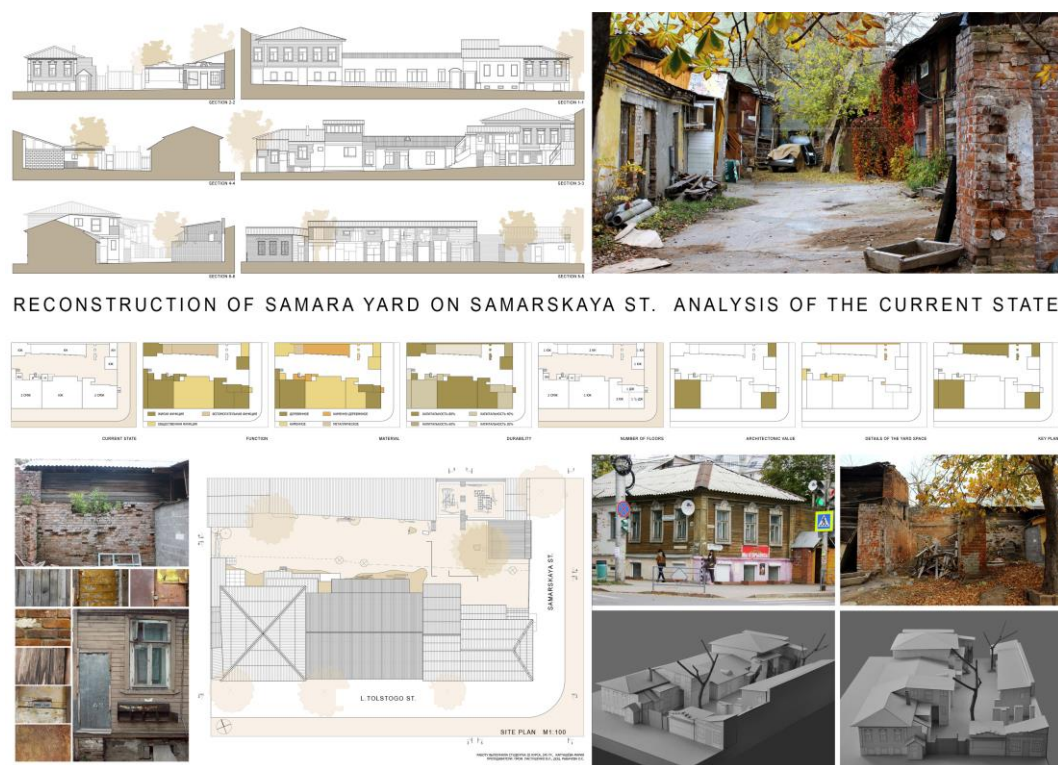


Figure 5. Project 1 «Reconstruction of Samara yard. Analysis of the current state», student M. Kartasheva



Figure 6. Project 1 «Reconstruction of Samara yard. Analysis of the current state», student I. Nekrasov



Figure 7. Project 2 «Reconstruction of Samara yard. Project proposal», student E. Lebedeva



Figure 8. Project 2 «Reconstruction of Samara yard. Project proposal», student T. Spiridonova

5. Conclusion

The implementation of this experimental project made it possible to identify some issues that need to be addressed in the reconstruction of courtyards and historic quarters in real design practice. Firstly, in order to preserve the scale and structure of the development of historical quarters, it is necessary to take its structural unit - the yard (one yard - one design object) as a reconstruction object; secondly, it is necessary to develop special standards, based on spatial and planning parameters that provide a complex historical infrastructure (adjustment of normal conditions and lighting, development of special fire protection requirements); thirdly, it is necessary to preserve the ownership structure of several homeowners (one yard - several owners). Such an approach to the methodology for reconstructing historical quarters will help preserve the architectural quality of the environment not only in Samara yards, but also in the quality of the environment and the building structure of the historic city center.

References

- [1] Balzannikova E M 2014 Preservation methods of architectural space in urban environments *European Science and Technology* (Munich: Vela-Verlag) pp 40-42
- [2] Rybacheva O S and Samogorov V A 2012 "Samara courtyard" as a concept in the system of constitutive and town-regulating documents *Vestnik of Tomsk State University of Architecture and Civil Engineering* (Tomsk: Tomsk State University of Architecture and Civil Engineering) **4** (37) 65–74
- [3] Samogorov V A, Sysoeva E A and Chernaya Y D 2011 *Wood and Wood-stone Architecture of Samara late in 19th - early 20th Centuries* (Samara: Samara State University of Architecture and Civil Engineering)
- [4] Samogorov V A and Rybakova D S 2014 Evolution of ideas about the interaction of an architectural object and context *Traditions and Innovations in Construction and Architecture* ed M I Balzannikov and N G Chumachenko (Samara: Samara State University of

- Architecture and Civil Engineering) pp 436-439
- [5] Malakhov S A, Mishechkina A B and Romanova D N 2013 *The Poetics of Samara City Space* (Samara: Samara State University of Architecture and Civil Engineering)
- [6] Rybacheva O S and Pastushenko V L 2014 "Samara courtyard" as a spatial model of training in architectural design *Traditions and Innovations in Construction and Architecture* ed M I Balzannikov and N G Chumachenko (Samara: Samara State University of Architecture and Civil Engineering) pp 406–408