

PAPER • OPEN ACCESS

Regional architecture of Russia: Kazan - conflicts of the “old” and “new”

To cite this article: Galina Aidarova and Elza Bashirova 2020 *IOP Conf. Ser.: Mater. Sci. Eng.* **890** 012016

View the [article online](#) for updates and enhancements.

Recent citations

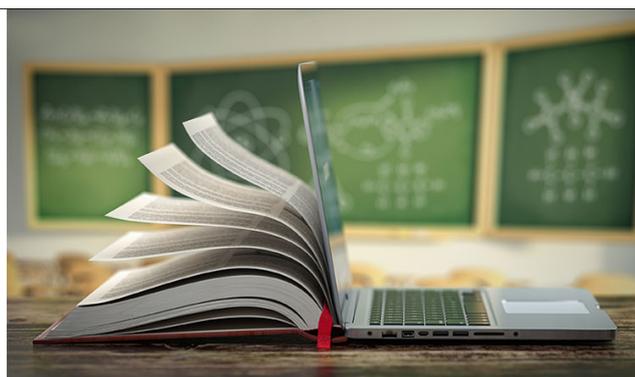
- [The architecture of spectacular buildings in the city of Kazan in the context of national and regional traditions](#)
Natalia Kinosyan *et al*
- [COVID-19 –global transition to a new architecture and urban development paradigm of the environment?](#)
Galina Aidarova *et al*



The Electrochemical Society
Advancing solid state & electrochemical science & technology
2021 Virtual Education

Fundamentals of Electrochemistry:
Basic Theory and Kinetic Methods
Instructed by: **Dr. James Noël**
Sun, Sept 19 & Mon, Sept 20 at 12h–15h ET

Register early and save!



Regional architecture of Russia: Kazan – conflicts of the "old" and "new"

Galina Aidarova^{1,[0000-0001-7469-8120]} and **Elza Bashirova**^{1[0000-0002-0346-1713]}

¹Kazan State University of Architecture and Engineering, 420043, Kazan, Russia
E-mail: bashirova.arch@gmail.com

Abstract. The problems of preservation of the architectural heritage and development of the historical center of Kazan, a Russian city on the Volga with a thousand-year history, are considered in this paper.

The main approaches in the architectural practice of Kazan were revealed: 1) restoration of monuments of federal and international significance; 2) eclectic imitations, based on historical styles in the architecture of new objects built in the historical environment; 3) modern architectural and constructive solutions adequate to the current historical time. Signs of a conflict of the «old» and «new» were established: the new buildings imitate the historical examples in stylistic, constructive and functional solutions. The “old” is demolished and rebuilt in materials and structures that do not correspond to the time of its creation.

The ideas that the use of historical styles in modern architectural solutions is unacceptable, and that the need to identifying the authentic heritage of all the periods that the historical city went through were established. Unique architectural solutions should be applied in the construction of new facilities in the historical center.

Keywords: regional architecture, conflicts of the “old” and “new”, preservation of the architectural heritage, reconstruction of the historical center, unique innovative solutions.

1 Introduction

Currently, the Republic of Tatarstan, is experiencing an unprecedented socio-economic and cultural upsurge. The growth of investment and tourist interest in Kazan, respectively, requires updating its image. Kazan is an ancient cultural center of the Volga region, which has been territorially mastered since ancient times; urban culture has been forming here since the 10th century. The architectural space of the central historical part contains the most valuable layers pointing to the stages of civilizational development. Like many cities in Russia and Europe, Kazan is experiencing problems associated with the preservation of the architectural heritage of the old historically developed central part of the city and at the same time with the needs of developing its infrastructure, public spaces, and the typology of new aesthetically significant architectural objects. An analysis of the international experience, as well as the architectural practice of Kazan in the context of similar processes in other cities, allowed us to identify the main approaches to preserving the “old” and the tendency of the “new” arising in the context of the historical part of the city.

Despite the fact that in the general sense the value of cultural heritage is considered undeniable, in a practical sense, there are a lot of unresolved issues. In particular, ethical, legal, organizational, economic and technological issues related to the preservation, restoration and use of cultural heritage are resolved differently in different countries. A serious question is the permissible degree of spatial and functional transformation of historical buildings, especially when it comes to objects of symbolic



significance, such as temples. Also, different opinions exist regarding modern “inserts” in a historical object, which is increasingly becoming an alternative to the usual conservation or full restoration of the original appearance. There remains the question of how permissible is to reduce the authenticity of the historical building in such a way [1, 2]. Also, the issue of the so-called “architectural fakes” – modern buildings that copy historical forms, remains an important ethical issue. The motivation for such decisions can be based on the desire to integrate the object into the surrounding historical environment or the “request” of the society or the owner. A more meaningful way of integrating historical regional features into modern architecture while maintaining its innovative nature seems more preferable [3, 4]. Controversial is the value of the so-called "architectural collections" - open-air museums in which certain objects are preserved, but the general authenticity of the environment is violated (since these objects are often "taken out of the context" of their origin and functioning). Such museums are popular among tourists [5, 6].

Preserving heritage at the city level is a complex multi-faceted challenge, consisting of many elements, but not equal to their sum, the city cannot be considered only in the light of its historical value. The city does not stop in its development and its modern stage also matters. Most researchers agree with the need to preserve the historical identity of cities, but at the same time emphasize the importance of solving the cultural, social and economic problems of our time, without which their sustainable development is impossible [7, 8]. The key factor for the management of heritage sites is the cultural significance of the place [9]. There are various strategies for preserving historical heritage at the city level. All of them are aimed at a harmonious combination of old and new, as well as compliance with the principles of general sustainable development [10, 11, 12, 13]. For heritage preservation to be effective, it must be economically viable, for example, through increased tourist flow [14], however, excessive economic growth and the resulting need for increased construction volumes may negatively affect the historical appearance of cities. Therefore, it is important to have strict laws for the protection of monuments [15]. The integration of the architectural heritage in the creative economy is an optimal measure [16, 17]. Effective work in the field of the study and restoration of cultural heritage is currently impossible without the use of digital technologies. Digital methods are used in the analysis, cataloging, visualization of heritage sites [18, 19, 20]. Modern CAD systems, in particular BIM, are used directly in the design process [21, 22].

G. Aidarova-Volkova in her studies considers the evolutionary processes of the formation of regional traditions based on the interaction of cultures [23, 24]. The work of the T. Vavilonskaya devoted to global issues of system planning in the field of preservation of historical and cultural heritage [25]. Schenkov A.S. considers the issues of theory and history of restoration of architectural heritage, the methodology of restoration of architectural monuments [26, 27]. In the studies of I. Bondarenko the comprehensive characteristics of the architectural heritage associated with the spiritual values of culture are disclosed [28].

2 Materials and methods

The materials of research are based on historical and theoretical studies of domestic and foreign authors as well as field sources – objects of architectural heritage and objects of modern architecture of Kazan, other Russian and European cities. The method of historical-architectural analysis was applied to identify the main historical stages in the development of Kazan architecture. Field analysis was used to describe the most significant architectural objects that reflect these stages. Methods of observation, comparison and description revealed the main approaches to architectural practice Kazan. Methods of analogy and generalization were used in formulating a strategy for preserving the historical and cultural heritage of Kazan.

3 Results

3.1 The historical stages of the development of Kazan architecture and their evidence in the modern look of the city

The architectural heritage of Kazan as an East European city, which arose at the intersection of the cultural flows of East and West, Islam and Christianity, has its own characteristics that distinguish it from other cities of Russia and abroad. The dialogue of cultures and the interaction of traditions has been going on for centuries. From a historical point of view, the architecture of Kazan was a complex interweaving of regional traditions and European influences in the architecture of mosques, churches, various public buildings, as well as in mass wooden and brick buildings of residential areas [23].

In the architecture of Kazan, a million-plus city, one of the largest historical cities in Russia, methodological difficulties in solving the problems of reconstructing the historical center, preserving the historical and cultural heritage and finding a development vector reflecting regional traditions have arisen. Historically important is the fact that the issue of preserving the historical and cultural heritage is emphasized at the state level. According to the mayor's office, 160 historical architectural objects are under construction with the aim of transferring them to investors. Of these, 51 objects relate to historical and cultural heritage. For the first time in many decades, real opportunities for preserving the historical and cultural heritage of Kazan are emerging. The reconstruction of the historical center is carried out under the control of the city and republican administrations. It is important to note the undoubted success in developing of the social movement for the preservation of the historical and cultural heritage of Kazan, supported by the government of Tatarstan, as well as new trends associated with the appearance in the central part of the city worthy examples of modern architecture. The latest trends in sustainable development are associated with an increase in the importance of historical and cultural heritage. Universal historical, cultural and architectural values comprehensively revealed in the city space can become one of the most important directions of the republic's economic development, its cultural strategy. The depth of cultural heritage is a strong argument in favor of indexing the reliability of all socio-economic development systems, as well as guarantees for foreign investors. Based on these grounds, it is possible to build strategies for the doctrine of regional development and increase tourist attractiveness.

The city of Kazan over a thousand-year history has developed around the Kremlin hill. Starting from the 10th century, Kazan was known as a trade and craft center, first as a part of the Volga Bulgaria (X-XII centuries), then as a part of the Golden Horde Bulgaria (XII-XIV centuries), then as the capital of the Kazan Khanate (XV-XVI centuries), from the middle of the XVI century - as part of the Moscow state, from the beginning of the XVIII century - the center of the Kazan province, from the beginning of the XX century - the cultural, economic and administrative center of the Tatar Autonomous Soviet Socialist Republic. After a long historical journey, Kazan in the 21st century turned into a modern metropolis, the capital of the Republic of Tatarstan. For many centuries, the traditions of the Mesopotamian, Central Asian East, the Middle East, Crimea, the Caucasus and Russian-European traditions intersected in the architectural space of Kazan, on this basis a regional originality was developed in the typology of urban spaces, the typology and stylistics of religious, residential and public buildings. Among the masterpieces of different eras: Syuyumbike Tower (XVI-XVIII centuries), Annunciation Cathedral (XVI century), Peter and Paul Cathedral (XVIII century), Mardzhani Mosque (XVIII century), Kazan University (XIX century), Alexander passage (XIX century), The bell tower of the Church of the Epiphany (XIX century), Azimov Mosque (XIX century), The Press House (XX century), Kazan circus (XX century), Kul-Sharif Mosque (XXI century), objects of industrial architecture: Alafuzov factory (XIX century), Petzold factory (XIX century). Each of them reflects the cultural values of its time. The Kazan Kremlin as the focus of archaeological remains of the architecture of the Bulgaro-Tatar Middle Ages, monuments of the Russian-Tatar period and the period of the Russian Empire is being under the protection of UNESCO since 2000.

Not all historical periods are reflected in the architectural appearance of Kazan: there are no reliable land objects of the heritage of the Bulgaro-Tatar Middle Ages (X-first half of the XVI centuries), only isolated artifacts of archaeologically identified underground remains (mausoleum, part of the Khan's palace). Possible layering of the construction periods of the Bulgaro-Tatar Middle Ages as a part of later heritage sites remains undetected; such a monument as the Syuyumbike Tower, magnificent in its architectural, artistic and constructive qualities which is under the protection of UNESCO as part of the Kazan Kremlin complex is not fully attributed [6].

3.2 Current trends in revealing the historical identity of the city

In the theory and practice of architecture of different cities and countries, such concepts as restoration, reconstruction, modernization, rehabilitation, reanimation, and revaluation have been developed. Diverse in their flexibility approaches and methods of complex and local reconstruction are developed based on scientific criteria. The protection of heritage at the present stage is conceived as a holistic urban development program containing various modes of architectural and construction activities in the historical environment. New opportunities for enriching the historical centers of cities arose with the development of tourist flows, as well as with an increase in public interest in the historical past of their culture [25, 27].

Modern theory and practice of preserving architectural heritage are characterized by trends associated with the maximum authenticity of monuments of the past, as historical documents of high importance. A variety of objects and artifacts of historical heritage, such as underground remains, ground fragments of buildings, fragments of decor, are preserved and opened for observing. All this enriches the urban space, the living environment. The reconstruction of the historical centers of cities is a problem that is solved differently in different countries. The methodology is developed on the basis of the opportunities that are available “at a given time, in a given place, by affordable means” (Warsaw, Dresden, Berlin, Madrid) [26]. At the same time, public opinion and cultural traditions are of considerable importance [9].

The historical city is not a frozen museum of obsolete eras, but a developing organism, in which there is a place for the past, and for the present, and for the future. Along with truly historical values, attention should be paid to the development of modern architecture based on the latest achievements of engineering technology and architectural thought. The prevailing idea that a historic building can be demolished, since in its place you can build a similar building of about the same size, prevents the proper preservation of the heritage. This will be the preservation of heritage. The misconception is that the smaller the new building will have a modern look, the better, since in the historical center modern architecture seems to overshadow the historical buildings. As a result, wooden and brick architectural monuments of the past, reliable documents of their historical time are demolished so that in their place, fakes in the style of the XVIII - XIX centuries appeared in the XXI century. Their value is measured by the cost of a square meter, while the value of the demolished object will never be compensated.

It is impossible to save everything, the city must develop in space and time. We need a constructive concept, a program with a methodological justification of what should be preserved and by what methods. In accordance with this program, various modes of reconstruction of the historical center of Kazan should be identified, depending on the different planning parts of the city, the level of heritage value. The problems of the modern development of the historical center are associated with a significant loss of reliable historical heritage, replacing it with a false historical architecture, understood as “preservation of heritage”, as “development of traditions”, “architectural originality”. Radially eclectic objects, significant in terms of investment, appeared very close to the Kremlin. At the same time, the use of historical forms in the architecture of modern religious buildings, such as the Kul Sharif Mosque in the Kazan Kremlin, can be considered a positive experience.

History, by definition, is a dynamically changing picture of eras, each of which has its own face, values, achievements. Each era leaves a unique mark of its time on the image of the city [28]. How is the identity of the urban environment realized in the new modern architecture? By what professional

methods are regional-national traditions translated into the future? These questions require adequate professional answers.

The latest trends reveal the desire for a comprehensive disclosure of architectural and construction layers of past centuries in the city. It is also archaeologically identified exhibits, which are included not only in the museums, but also in the everyday spaces of the city (streets, metro). The more diverse is the historically reliable urban environment, containing not only “monuments”, but also “old places” characteristic of the city, the richer and more complete is the city. This does not mean that the priority of heritage preservation should impede the development of modern architectural thought. The imitation of the styles of the past will not raise Kazan to a high level of modern development, which has a city with significant cultural ambitions and scientific, technical and economic potential. The impressively unique architecture of the XXI century should take its rightful place in the historical center of Kazan. All other questions relate to the professionalism and talent of the architect: scale, stylistics, consideration of the context, the novelty of architectural and artistic solutions [24].

The experience of the largest capitals of the world shows the ways of developing historical centers. This is an innovative technology of architectural and engineering solutions, which are an area of international competition. Cities and countries that fall out of this series position themselves as architectural peripheries that do not claim leadership positions in the global civilization process. It is important to maintain a leading position in modern architecture and in preserving the historical and architectural heritage for the largest European metropolitan cities, such as Paris, London, Berlin, Barcelona, etc. [...].

Unique modern solutions are the same objects of tourist interest as authentic historical buildings of past centuries. An example of this is the numerous works of Frank Gehry (Guggenheim Museum in Bilbao), Jorn Utzon (Sydney Opera House), Zaha Hadid (Heydar Aliyev Cultural Center in Baku), as well as a huge number of objects in the United Arab Emirates, where the government makes huge investments in the latest unique solutions for the purpose of their subsequent financial benefits (Burj al Arab, Burj Khalifa). Tourists from all over the world travel to see such objects. It is such objects that have economic feasibility, providing the cultural and political image of the country. At the same time, conflicts often arose between new unique objects and the historical context.

In the cities of Europe, the emergence of outstanding works of architecture was perceived ambiguously (the Eiffel Tower, the Pompidou Center, Lloyd's of London, 30 St. Mary Axe skyscraper). As a rule, an innovative architectural solution meets rejection in non-professional layers of society. It was also with some objects in Russian cities, for example, with the unique design of the Mariinsky Theatre building in St. Petersburg, completed by E. Moss.

The participation of Moscow and foreign architects in the design of objects for Kazan is episodic. There is a completed project for the residential complex of the Spanish architect Jose Asibilio, but none of the unique competitive projects of the Tatarstan National Library by the Netherlands architect Eric Egeraat or Moscow architects D. Velichkin and N. Golovanov have been implemented. Exactly such architecture, ahead of its time, should take place in the historical center of the largest city, where the cost of land is too expensive, where there are too many unique objects of history and where every modern building should be an event, because in this case it will also become an object of history. Precedents with the implementation of the highest level projects are categorically necessary for Kazan. Only innovative solutions should appear in the architecture of the historical center, showing the creative nature of architectural and engineering ideas.

3.3 Strategies for preserving the historical and cultural heritage of Kazan: the conflict of the “old” and “new”

World experience shows that the more cultural layers in the architectural space of a city, the more historical eras are present in it, the higher its cultural and economic potential, the richer and more significant its political image, the greater its contribution to the world community [10, 14]. In the modern development of historical centers of the largest European cities, the general problems of preserving the historical and cultural heritage and the need for updating and developing the historical

environment are manifested. The largest European cities have common signs of the intrinsic value of historical centers. The maximum disclosure of not only historically reliable architectural objects, but also archaeological layers included in the context of public complexes and open urban spaces, becomes a means of humanizing the architectural environment, increasing its sociocultural stability, and tourist attractiveness. The historical significance of culture is demonstrated in various forms, showing the enduring material and spiritual values of the nation (Rome, Athens, Cairo, Barcelona, Dresden, Istanbul).

In Tatarstan, the preservation of historical and cultural heritage has its own history associated with the activities of Peter the Great. When visiting Kazan and the ancient capital of the Golden Horde Bulgaria, the city of Bolgar in 1722, he ordered to preserve the medieval white-stone buildings: mosques, minarets, mausoleums and baths. At that time there were more than seventy of them, nowadays there are no more than 10 authentic ruined objects. Currently, new buildings have been built in the ancient capital in the forms of medieval architecture – a mosque and an Islamic university. The city acquired a new life, became a tourist and religious center [24]. In the XIX century, the museum movement intensified the first scientific studies of antiquity, graphic fixation and museumification of architectural objects of Bolgar, Bilyar, Kazan, Sviyazhsk began. In the twentieth century, two factors contributed to the preservation of the historical and architectural heritage in Kazan: the need to preserve historical places associated with revolutionary and military glory and the construction of residential areas far from the historic city center. In the 70-80s of the twentieth century, there was an awareness of the need to preserve heritage, to develop a register of monuments, conservation zones. At the same time, the preservation of the historical center was passive, since the city lacked the necessary funds to maintain the heritage. Only few objects of the Kremlin and separate buildings underwent restoration prior to important political dates. With the beginning of restructuring in Kazan, there was a massive loss of historical blocks with brick-stone buildings and especially with wooden residential buildings. In the 1990s, enormous efforts were made in Kazan to preserve and restore the Alexander Passage (1883-1886), one of the outstanding buildings of this type in the Volga region, as well as the decision of the City Hall to preserve the Kazan Hotel (the first half of the XIX century) using partial restoration, reconstruction and recreation. A successful experience was the reconstruction of the house-museum of the Soviet writer Vasily Aksenov along Karl Marx Street using a technique acceptable for Kazan, combining such reliable elements of the past as the planning and structural basis, stylistic elements of the interior, the historical appearance of the house with its cladding on the one hand, and a modern constructive solution on the other hand. The experience of reconstructing the cathedral church of the Kazan Theotokos Monastery on the basis of preserved iconographic sources and modern designs creates a precedent for the subsequent reconstruction of the lost monuments, while such objects still cannot have the status of a monument.

As a result of the loss of a significant part of the historical heritage, especially wooden residential and public buildings, there arose difficulties with the heritage of the Old Tatar settlement. Built up mainly by traditional wooden residential buildings of the XVIII - XIX centuries, it required significant funds for restoration. It was possible to save only certain fragments of the wooden manor buildings and brick-stone mosques. The Old Tatar settlement occupies an important place in the cultural and architectural heritage of Kazan as the territory of the local residence of the Kazan Tatars, starting from the XVI century (figure 1). Fears were associated with the possible loss of the heritage of the Old Tatar settlement, which could lead to the fact that Kazan would lose a significant part of its identity. If for some part of the citizens this problem is associated with the loss of a sense of homeland, then this is a serious argument for making some urgent decision. The restoration of the Old Tatar settlement began and continues at present with the active participation of the public. The reconstruction of lost residential buildings is carried out by replacing authentic monuments with modern copies. This method, strictly speaking, is incorrect; the reconstruction of wooden houses could be carried out according to the restoration method, in compliance with those construction technologies that are identical to the recreated object. Such a method, for example, was applied to the restoration of a wooden house of A. Druzhinina in another, "Russian" part of the city, where all the details and designs

of the house have been painstakingly reproduced for several years (figure 2). An erroneous understanding of the idea of preserving historical and cultural heritage as a free interpretation of historical styles in materials can seriously damage the city and its historical center. Kazan experienced not only significant loss of architectural heritage in certain periods associated with the Russian-Tatar Middle Ages, but also the large-scale demolition of historical buildings during the reconstruction of the historical center. So, for example, on the site of authentic monuments - documents of their era (Sukonnaya settlement) there were historical fakes that have no cultural, architectural and artistic value. The same substitution of heritage is partly happening in the Old Tatar settlement.



Figure 1. Tatar yard (watercolor by Ravil Aidarov).

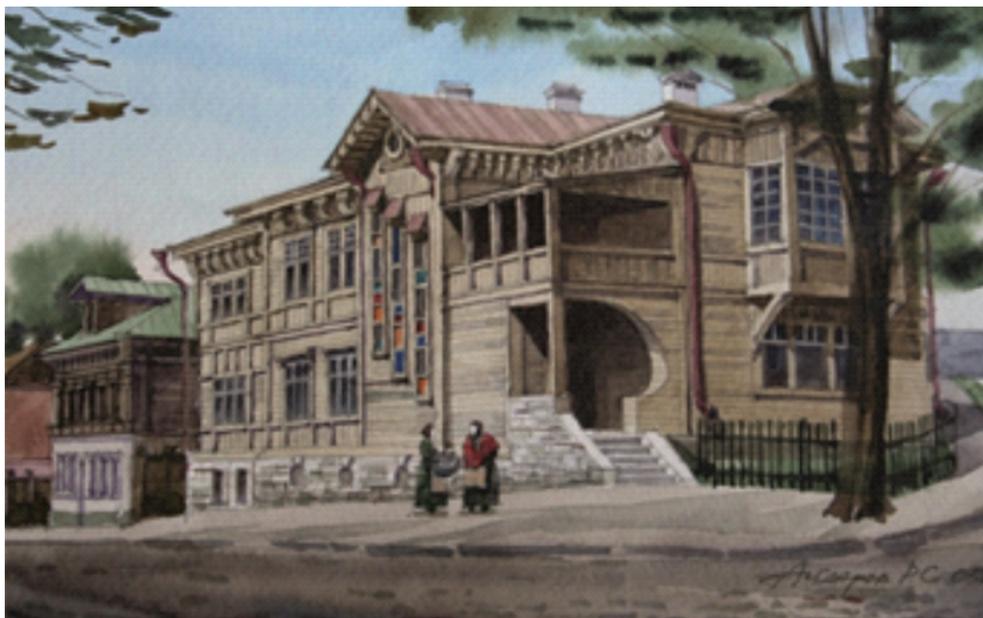


Figure 2. House of V. A. Druzhinina, 1911. (watercolor by Ravil Aidarov).

4 Discussions

Summing up, we can say that there are two trends in the architecture of Kazan now. One of them is historical imitation as an echo of postmodernism, characteristic of foreign architecture of the 1970-1980s, which has long left the leading European cities, remaining on the periphery of provincial architectural phenomena, where the tastes of inexperienced customers determine the work of architects. And although such architectural solutions should remain on the outskirts of the city, they still appear on the most significant places of the historical center - near the walls of the Kremlin, on the central streets of Kazan. The second direction, which is steadily gaining strength, is connected with the search for architectural solutions expressing the current historical time, new architectural thinking, and new design capabilities. It coincides with the general trends of modern architecture of the countries of East and West. This direction opens a new page in the architecture of Kazan as one of the largest cultural and economic centers of Russia. This trend is manifested in significant architectural works. Among them are public buildings and complexes: "Pyramid", "Basket-Hall", "Korston", office buildings "Taif", "Solo", a fitness center on the Ostrovsky street, residential complexes: "Crystal", "Cherry Orchard", etc.

Adherence to strategies combined with the maximum preservation of the natural landscape can be the basis for the preservation and development of the regional identity of Kazan – a city that not only preserves antiquity, but is also enriched with innovative architecture that will make up the page of the history of the XXI century.

Measures are necessary to solve the problems of preserving the heritage and developing the historical center:

1. These are scientifically based ideologies, heritage preservation criteria, development of methodology and practical techniques. Clear answers to questions about what to save, how to save. In what cases are partial or complete restoration methods applied, in which reconstruction, and in which reconstruction of a historical object. Speedy transition to practical actions. Thorough registration, certification of heritage, control and monitoring of the state of architectural monuments. The distribution of urban historical objects on the balances of large enterprises of the city and foreign investors, including the Tatar diaspora. Each resident must answer the question "What did he do to preserve the historical and cultural heritage of Kazan?"

2. It is necessary to have a variety of approaches to placing objects in the historical center of Kazan that impress with the novelty of architectural and structural solutions. Only truly innovative architecture of its time can have historical and cultural value in the future.

Adherence to these strategies may be the basis for the preservation and development of the regional identity of Kazan.

The conclusions obtained in this paper correspond with the findings in the studies of T.V. Vavilonskaya carried out on the material of the Samara Volga region. A number of authors believe that the historical centers of cities need only to be maintained and improved their infrastructure. In this paper, on the contrary, the authors discuss on a concept based on the principles of developing the architectural environment of a historical city based on the possibility of the appearance of new objects significant for the city, objects reflecting the technical level, aesthetic and ethical values of their time.

References

- [1] Uscinowicz J 2019 "Second Life" of Abandoned Temples – Retrospect and Prospects. In: *IOP Conference Series: Materials Science and Engineering*, **471** 112021. doi: 10.1088/1757-899X/471/11/112021
- [2] Weclawowicz-Gyurkovich E 2019 Criterion of Authenticity or New Creation in Historical Fortresses on the Territory of Poland. In: *IOP Conf. Series: Materials Science and Engineering* **471** 082013. doi: 10.1088/1757-899X/471/8/082013
- [3] Guardigli L, Guidotti A 2018 True, False or Ordered? Some Architectures to Think About Reconstruction. In: G. Amoroso (ed.), *Putting Tradition into Practice: Heritage, Place and Design, LNCE*, Vol. **3**, pp. 45-54. Springer, Heidelberg. doi: 10.1007/978-3-319-57937-5_5

- [4] Waleed S Alawsey, Hiba A Al-Dulaimi 2020 Architectural Mimeticism Between Heritage and Technological Advancement. In: *IOP Conference Series: Materials Science and Engineering*, **671** 012128. doi: 10.1088/1757-899X/671/1/012128
- [5] Barry K M 2017 Buildings as Artifacts. In: Heritage, Patriotism, and the Constructed Landscape. *Architectural Histories*, Vol. **5**(1): 3, pp. 1–13, DOI: <https://doi.org/10.5334/ah.189>.
- [6] Bostrem L A 1990 Ways of maximizing the durability of wooden architecture monuments under conditions of their operation in open-air museums. In: *Puti sohraneniya I metody restavracii pamyatnikov derevyannogo zodchestva*. pp. 86-89.
- [7] Racon-Leja K 2019 Impact of Wartime Destruction and Post-War Politics on the Social Reconstruction of a Modern City – on the Example of Magdeburg. In: *IOP Conf. Series: Materials Science and Engineering* **471** 112099, doi:10.1088/1757-899X/471/11/112099.
- [8] Isidori F 2015 A structural project: Redevelopment of the historic center of Wuhu. In: *Frontiers of Architectural Research*, Vol. **4**, pp. 100–118. doi: 10.1016/j.foar.2015.01.001
- [9] Firzal Y, Tamas I 2018 Cultural Significance of the Place: the Key Factor in Urban Heritage Programme. In: *IOP Conf. Series: Earth and Environmental Science* **213** 012008, doi:10.1088/1755-1315/213/1/012008.
- [10] Tomas Wagner 2017 Searching for Innovations and Methods of Using the Cultural Heritage on the Example of Upper Silesia. In: *IOP Conf. Series: Materials Science and Engineering* **245** 042088, doi:10.1088/1757-899X/245/4/042088.
- [11] Versaci A 2016 The Evolution of Urban Heritage Concept in France, Between Conservation and Rehabilitation Programs. *Procedia-Social and Behavioral Sciences* **225**, 3-14. doi: 10.1016/j.sbspro.2016.06.003
- [12] Guerrini L 2018 Design as a Tool for Bringing New Life to the Historic Centre of L'Aquila. In: G. Amoroso (ed.), *Putting Tradition into Practice: Heritage, Place and Design, LNCE*, Vol. **3**, pp 115-124. Springer, Heidelberg. doi: 10.1007/978-3-319-57937-5_13
- [13] Bandarin F, Oepse R 2013 Historic urban landscape. *Managing Heritage in the Age of Urbanism*. Otechestvo, Kazan.
- [14] Hmood K, Jumaily H, Melnik V 2018 Urban Architectural Heritage and Sustainable Tourism. *WIT Transactions on Ecology and the Environment*, Vol **227**, pp 209-220, doi: 10.2495/ST180201.
- [15] Heldak M, Gonda-Soroczynska E 2019 Historical Heritage and Space Transformation. In: *IOP Conf. Series: Materials Science and Engineering* **471** 112030, doi: 10.1088/1757-899X/471/11/112030.
- [16] Mitterer W 2018 The Environmental, Social and Economic Impacts of the Reconstruction Plan in Onna. In: G. Amoroso (ed.), *Putting Tradition into Practice: Heritage, Place and Design, LNCE*, Vol. **3**, pp 55-60. Springer, Heidelberg, doi 10.1007/978-3-319-57937-5_6.
- [17] Abdelmonem M G 2017 Architectural and Urban Heritage In The Digital Age: Dilemmas of Authenticity, Originality and Reproduction. In: *Archnet-IJAR*, Vol. **11** (3), pp. 5-15. doi: 10.26687/archnet-ijar.v11i3.1415
- [18] Maekelberg S, De Jonge K. The Prince's Court at Bruges: A Reconstruction of the Lost Residence of the Dukes of Burgundy. *Architectural Histories*, 6(1): **23**, pp. 1-14. doi: <https://doi.org/10.5334/ah.227>.
- [19] Giordano A, Friso I, Borin P, Monteleone C, Panarotto F 2018 Time and Space in the History of Cities. *Digital Research and Education in Architectural Heritage* **817**, pp 47-62. doi: 10.1007/978-3-319-76992-9_4
- [20] Lurk T, Schwander M, Brefin D, Florenz B 2017 When Promenadology Meets Library. In: *Digital Research and Education in Architectural Heritage: 5th Conference, DECH 2017*, and First Workshop, UHDL-2017, pp. 179-195. Springer, Drezden.
- [21] Inzerillo L, Santagati C, Lo Turco M, Parrinello S, Valenti G M 2016 BIM and architectural

- heritage: towards an operational methodology for the knowledge and the management of Cultural Heritage. *Disegnarecon*, Vol. 9 (**16**) pp 161-169.
- [22] Brusaporci S 2017 Digital Innovations in Architectural Heritage Conservation: Emerging Research and Opportunities. *IGI Global*, Hershey PA. doi: 10.4018/978-1-5225-2434-2
- [23] Ajdarova-Volkova G N 1997 The architectural culture of the Middle Volga XVI-XIX centuries: a model of development, structure of types, influence. KSUAE, Kazan.
- [24] Ajdarova-Volkova G N 2012 Problems and methodology of preserving the historical and cultural heritage of Kazan. *Izvestija KGASU*, Vol. 2(**20**), 9-15.
- [25] Vavilonskaya T V 2008 Strategy for updating the architectural and historical environment.
- [26] Schenkov A S 2011 Reconstruction of historic built environment in Europe in the second part of 20th century: historic and cultural problems. Moscow.
- [27] Schenkov A S 2010 Architectural heritage at the turn of 21st century. Problems of restoration and preservation of heritage. Moscow.
- [28] Bondarenkov I A 2008 Theory and History of Architecture and Urban Planning. Kolo. Saint-Petersburg.