

# Application of metareconstruction method as a means of marking traces of lost historical buildings

T G Artemyeva and E M Balzannikova

Samara State Technical University, 194, Molodogvardeyskaya St., Samara, 443001, Russia

E-mail: [tatart2@gmail.com](mailto:tatart2@gmail.com), [balzannikova@mail.ru](mailto:balzannikova@mail.ru)

**Abstract.** The article analyzes the well-known methods of conservation of architectural heritage. The international and Russian regulatory documents on the conservation of buildings are considered. The authors determine the approaches to development of ways to recreate lost historical monuments or their parts. A new method for preserving historical architectural objects is proposed. The method is based on the principle of repeated reproduction of the image of the building by marking the general contours of the lost shape with the restoration of the metaphysical properties of the object. The term “metareconstruction” is proposed to denote a new method for preserving historical objects within the existing urban environment. The method can be implemented for saving environmental objects. The main characteristic features of the method and its difference from other known methods are listed.

## 1. Introduction

The important aspect of the development of modern cities is the preservation of valuable city-forming objects [1-4]. There are various approaches to the implementation of this course in the formation of historically developed city centers [5-9]. The main criteria for the implementation of these methods are enshrined in the provisions of the International Charter for the Conservation and Restoration of Monuments and Sites (II International Congress of Architects and Technical Specialists in Historical Monuments (Venice, 1964) [10]. At the moment, the authors believe that a thorough analysis of the existing methods for preserving the architectural heritage and identifying trends in the possible development of these areas in modern society is relevant. In particular, it is necessary to pay attention even to the residual elements of architectural objects.

## 2. Analysis of existing methods

The authors performed the analysis of generally accepted approaches to the preservation of heritage sites, enshrined in international and Russian regulatory documents. Thus, according to Article 1 of the Venice Charter, the concept of a historical monument extends, inter alia, to “more modest structures that acquire significant cultural value over time”, but for many subjective reasons lacking a chance to be preserved. Separately, Article 3 focuses on understanding the value of architectural monuments as “witnesses of history”. Hence, the direct consequence – the existing historical environment always functions as a means of communication between history and citizens.

Article 9 of the Charter addresses “the respect for authenticity”, which makes the falsification of “historical and artistic actuality of the monument” unacceptable, and Article 12 states the



unacceptability of falsification through imitation (mocking). Articles 3, 4, 5, 6 give permission for the use of historical architecture, its adaptation, “caused by the new requirements of modern life, while maintaining architectural integrity” [10].

The example of the restoration of a destroyed architectural object with maximum preservation of the remaining fragments of the building (full scientific restoration) is Frauenkirche (Church of the Virgin) in Dresden, almost completely destroyed during the bombing, one of the most significant Lutheran churches of the city (Figure 1).



**Figure 1.** Frauenkirche church in Dresden: a) general view before destruction; b) preserved elements of the church; c) view of the saved fragment of the church as part of the restored object.

On the territory of the Russian Federation, the following methods of preservation of cultural heritage objects are approved by the Federal Law of June 25, 2002 № 73 On Objects of Cultural Heritage (Historical and Cultural Monuments) of the Peoples of the Russian Federation: conservation, repair, restoration, adaptation for modern use. The indicated methods serve as the basis, but do not specify the list of permissible works within the established framework, or differentiate approaches in relation to the entire object from approaches to preservation of individual lost elements (fragments) of buildings.

At the same time, there is a need for actions in relation to the historical object that go beyond the methods permitted by law, but do not contradict the articles of the Venice Charter. In most cases, this applies to fragments or completely lost historical buildings in the absence of the need for their material reconstruction, including when the significance of the monument and its relatively recent loss requires its metaphysical presence.

The implemented example of such is the Memorial Complex of Benjamin Franklin (Franklin Court), who was a statesman of the United States and signed the three most important historical documents being in the heart of the formation of the United States – a biographical museum, located on the site of an unreserved residence. The complex was designed by the Venturi & Rauch architectural bureau as part and one of the symbols of the bicentennial history of the United States. It is a reconstruction of the image and “spirit” of the residence and incorporates the archaeological remains of the house of Benjamin Franklin (Figure 2).



**Figure 2.** General view of the Benjamin Franklin Memorial Complex

Making decisions about the forms and levels of restoration depends on many factors. Restoration as an “exceptional measure” is advised in those cases when the functional potential of the monument is as high as its cultural, historical and aesthetic value for local or worldly significant places. But often the interweaving of objective, and often subjective, reasons makes the whole restoration process impossible or so remote in time that it leads to the restoration being meaningless (due to the complete loss of the monument by the time or the loss of reason for its restoration).

One of the key factors for the monument restoration is the relatively recent time of loss. The reason for the disappearance could be world, local, interethnic and interfaith wars, fires and natural disasters. Historical architecture often becomes one of the main victims of such events. However, each lost historical object only recently existed and occupied a place not only in real space, but also in modern consciousness, and was part and parcel on which the understanding of the integrity of the environment, surroundings and the world as a whole depended.

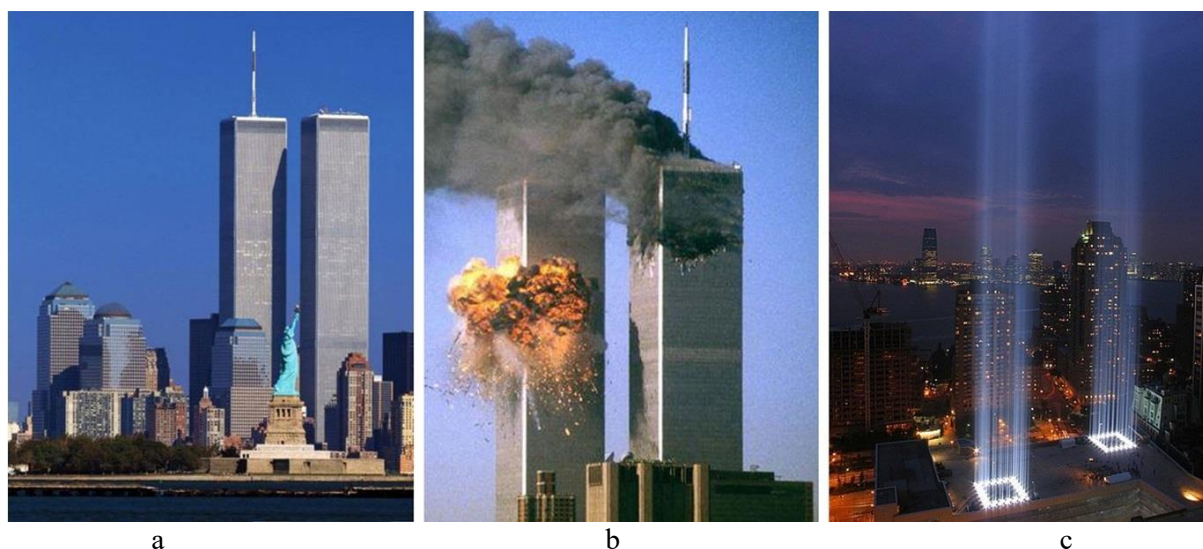
Understanding the concept of “integrity” and its contextual mismatch with the concept of “wholeness” plays a decisive role in choosing a method of working with a historical object. The wholeness of the monument is called into question when the holistic perception of the monument that has developed over the course of many generations is based on its unfinished or ruined appearance. It is appropriate to address an antique sculpture of Venus de Milo as a well-known example. Deprived of hands, the restoration of its wholeness would inevitably lead to a distortion of the familiar historical image (appearance) of the famous sculpture.

A realized example of the restoration of wholeness is the architectural ensemble of the Tsaritsyno complex (architect A.V. Bazhenov), the restoration of which allowed non-compliance with modern principles of scientific restoration and direct “falsification of the historical and artistic actuality of the monument”, which contradicts the provisions of Article 2 of the Venice Charter – “the elements intended to replace the missing fragments should harmoniously fit into the whole and at the same time differ from the genuine ones so that the restoration does not falsify the historical and artistic actuality of the monument” and Article 9, in the part concerning the work on additional elements, which should “bear the seal of our time” in order to exclude historical disorientation.

A special architectural solution is the project of Tribute in Light Memorial by a group of architects, artists and engineers led by lighting designer Paul Marantz, which implies the positioning of two



beams of light one and a half kilometers high in place of the destroyed World Trade Center (WTC twin towers by architect Minoru Yamasaki) in New York. Despite the relatively short historical period of their existence, the towers acquired the status of a symbol of the New York City. However, the restoration of their original look is meaningless, but embodied in human memory and in many material evidence – photographic, cinematic and other, the image of the tallest twin buildings in Manhattan of the second half of the twentieth century, the loss of which is felt at many levels as a national, epoch-making and universal event – requires restoration. The beams of light proposed by the project consolidate the main signs of lost architecture – the twin nature and upward aspiration, forming phantom traces of previously existing buildings (Figure 3).



**Figure 3.** Twin Towers in New York: a) general view before destruction; b) towers during the terrorist attack; c) the design of light beams in place of the towers.

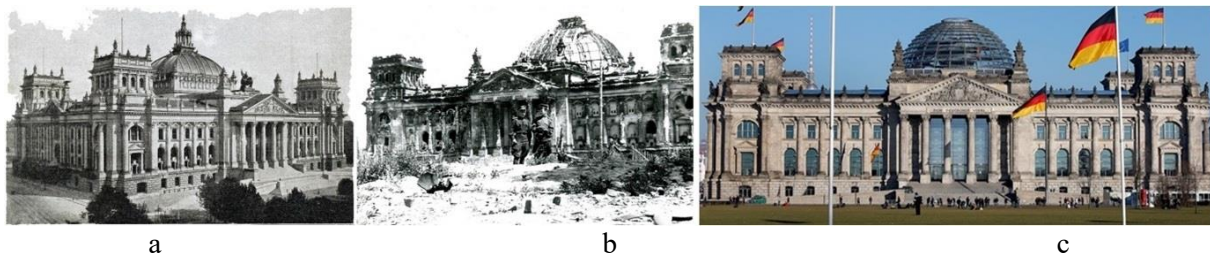
### 3. Principles of distinction

Thus, it can be stated that along with the traditional legislatively acceptable methods of preserving historical architecture, such as conservation, restoration and repair, there are other solutions that contribute to the restoration of lost monuments or their parts to a new level – with a decrease in the level of materiality, transition of forms of lost fragments or whole monuments, reproduction of their physical and metaphysical traces through the use of modern materials and technologies.

It is advisable to designate these decisions, including work with objects at various materialized levels, as the “metareconstruction” method. The prefix “meta”, in the context of the concept, means the abstraction from concrete detailing and specific materials, generalization of forms, change of state, transformation, that is, transformation of material, physical essence into its metaphysical form.

It is advisable to identify the following fundamental differences of metareconstruction from the known methods of buildings preservation:

- 1) conditional recreation of lost elements or objects of historical buildings in order to restore the integrity of their perception as parts of the existing historical environment. An example of this approach is the reconstruction of the lost Reichstag dome in Germany, designed by Norman Foster, implemented with a change in shape and a decrease in the level of “materiality”. The enclosed faceted dome was replaced by a transparent frame of a concentric shape – a kind of “exoskeleton” of the lost historical part of the building (Figure 4);



**Figure 4.** Reichstag building: a) general view before destruction; b) preserved building elements; c) restored building with a modified dome.

2) restoration of metaphysical qualities of lost or ruined monuments. An example is the project of Tribute in Light Memorial – light beams at the site of the destroyed WTC twin towers in New York (an example is shown above, Figure 3);

3) reproduction of the image using conditionally material consolidation of the general/generalized shape of the lost object using modern materials, structures and technologies. An example is the Benjamin Franklin Memorial, a kind of ghostly “phantom” house, constructed of frames, marking the location, shape configuration and scale of the lost building while preserving the space that used to be a manor (an example is shown above, Figure 2).

The place of metareconstruction in a series of legally permissible methods of working with historical monuments seems quite wide and significant. Decisions on the use of metareconstruction techniques are acceptable in situations when it is impossible for any reason to carry out a scientific restoration of an architectural object, but the value of a historical object (independent or contextual) necessitates its conservation.

In the system of cultural heritage values, meta-reconstruction techniques can save or restore:

- partly the historical value of the lost object or its fragment;
- urban development value of the existing historical urban landscape – visual ecology and historical urban morphotypes;
- architectural and artistic value-reproduction of the image of lost objects.

However, in our opinion, for the preservation and recovering of scientific and restoration value, the metareconstruction method is not applicable, because when it is applied, the functional value usually changes or is canceled due to the transition to a different qualitative state.

In addition to completely lost monuments or fragments, the method can also be used to restore “phantom” images of historical architecture, the so-called “metaquotes” in the context of urban semantic communications. The example is the completed project of the American architect Ieoh Ming Pei of the famous glass pyramid of the Louvre in the court of Napoleon – a literally broad hint to the intercontinental conquests of the great commander. “Soldiers! From the heights of these pyramids, forty centuries look down on us!” [11].

In the era of transition to digital technologies in the field of culture, virtualization of human perception, actual reality becomes valuable, and historical architecture, as an elitist reality, acquires exceptional value. The loss of historical objects can be perceived as the loss of individual links from the cultural DNA of the civilization, calling into question the continuity of existence and the adequacy of humanity. Therefore, the reconstruction of real architecture using the described approaches of metareconstruction will ensure the integrity of the perception of the historical environment (while maintaining not only the physical wholeness of the object, but also its metaphysical role). Moreover, meta-reconstruction seems appropriate and economically acceptable with the limited budget of the owner (copyright holder) of the historical object.

#### 4. Conclusion

1. The existing and legally approved methods for the preservation of cultural heritage objects do not specify the list of permissible works and do not differentiate approaches in relation to the entire object from approaches to preservation of individual lost elements (fragments) of buildings.

2. New approaches to the restoration of lost monuments or their parts at a new level are appearing. These approaches are characterized by a decrease in materiality, transition of the forms of lost fragments or complete monuments, reproduction of their physical and metaphysical traces through the use of modern materials and technologies.

3. It is advisable to designate solutions that include working with objects at various materialized levels as the metareconstruction method. The characteristic features of metareconstruction are: the conditional reconstruction of the lost elements or objects of historical buildings in order to restore the integrity of their perception as part of the existing historical environment; restoration of the metaphysical qualities of lost or ruined monuments; reproduction of the image using conditionally material consolidation of the general/generalized traces of the shape of the lost object.

4. The metareconstruction method ensures the integrity of the perception of the historical environment. The method is applicable with a limited budget for the owner of a historical object.

## References

- [1] Balzannikova E M and Samogorov V A 2017 The Conservation of Historical Architectural Heritage in Russia *MATEC web of conferences* **117** 00014
- [2] Artemyeva T G, Balzannikova E M and Leonova A K 2017 To the question of the apology of highly amortized non-functioning objects of cultural heritage on the example of the historical buildings of the city center of Samara *Industrial and civil engineering* **3** 33-38
- [3] Balzannikov M I and Balzannikova E M 2014 Protection of architectural monuments of Venice from flooding *Scientific review* **6** 42-49
- [4] Galitskova Yu M and Balzannikov M I 2018 Technical Solutions for Improving the Safety of Housing and Communal Services *MATEC Web of Conferences* **196** 04025 (1-6)
- [5] Gelfond A L 2015 Public building and public space Relationship dualism *Academia Architecture and construction* **2** 18-31
- [6] Samogorov V A, Rybacheva O S and Fadeev A V 2015 Features of the Morphology of Space and Development of Historical Quarters of Samara *Scientific Review* **4** 191-198
- [7] Vavilonskaya T V 2014 Saving and Updating the Architectural and Historical Environment of the Samara Volga *Architecture and Construction of Russia* **12** 2-9
- [8] Lekareva N A and Zaslavskaya A YU 2014 *Spatial resources of the city Town Planning Strategies* (Saarbrücken: LAP LAMBERT Academic Publishing)
- [9] Rozhdestvenskaya E S 2006 Principles of harmonization of the anthropogenic and natural environment *Vestnik of Orenburg state University* **S11-2 (61)** 198-202
- [10] II International Congress of Architects and Technical Specialists in Historical Monuments 1964 *International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter)* (Venice: Adopted by ICOMOS)
- [11] Nérét G 1994 *Description de l'Egypte: publiée par les ordres de Napoléon Bonaparte* (Köln: Taschen)