

Ideological Content of Architectural Form

Negay Georgiy

*Associate Professor of the Khmelnytskyi National University
Khmelnytskyi, Ukraine*

Bielinska Mariia

*Student of the Poltava National Technical Yuri Kondratyuk University
Poltava, Ukraine*

Abstract

The content of the architectural form is determined by the functions, which it realizes. Nevertheless, architects, founders of the architectural space, consider not all functions that characterize form making as well as public cultural requirements. Least of all they draw attention to ideological and information functions. To control the information component in this paper, a quantitative (different) model of visually perceived information is presented, based on the distinctive sensitivity of the human visual system. The unit of information in this model is called "eler" (elementary difference). Authors suggest using this model to control informational content of the architectural environment. Hieratic objects of Ukrainian Baroque and Samarkand Mausoleum of Guri Amir were introduced as an illustration of respect for above-mentioned functions.

Key words: architectural form, function, informativity, homomorphism.

Target setting

Every person knows the concept of form. It is clear to us and simultaneously it is unsearchable, almost substantial while also, ghostlike, imperceptible. In the concepts of architectural form were represented dimensional meagre geometrical objects as well as sculptural architectural millwork, triumphant balance of marble temples of ancient Greece and heavenward Gothic towers, gorgeous stucco molding of Baroque and magnificent Empire style of Russian architecture, ascetically rational contours of constructivism and lapidary severeness of new architecture – architectural form, stoned ideology of different times and nationalities. It embodies the philosophy, culture, and artistic tastes of each period. It encoded intellectual and spiritual potential of the folk, its concerns, and achievements, its civilization level.

What is architectural form and what is its gist and sense of its content? This is far from rhetorical questions, because of the depth of knowledge about it depends on the

constructiveness of its interpretation, conscious arranging of compositions of modern buildings and ensembles. The form is usually associated with shape volume, its heaviness or simplicity, with surface curvature, edges, angularity, smoothness or roughness, namely with all those physical characteristics, which accumulated in our memory in the process of life activity. Speaking about architectural form, three-dimensionality is first intended and three-dimensionality is a source of form making. It is commonly supposed that form is an expression of internal content. However, which?

In ancient philosophy, a form was considered an effective force that existed as a counter balancer to this phenomenon. Such kind of the form interpretation can be found in Plato, and in Aristotle. The form transforms matter into an object, into a sculpture, into a car, etc. The architectural form makes the material architecture. Alberti determines form as the "contours" of the architectural object.

Why should we recognize and comprehend the essence and principles of form making? Primarily, because form, mediating all social and functional processes, filling the space of our life activity, strongly effects on our conscious and subconscious and, thus, is a powerful factor of a social and economic efficiency of architecture. Its significance, as an active socio-making factor, cannot be underestimated. Currently, the concept of form only from the point of view of its aesthetic significance is not productive. In the era of rebellious socio-technical processes, the form must be viewed both as a social-spatial environment, as a product of the society activities, and as a means of social development ensuring. The purpose of this research is to determine the content, principally, of an ideological, architectural form and its informational content.

Previous research

The interaction of elements of the system "architecture-society" was fundamentally considered in the studies of Y. Evreinov, G. Lavrik, and K. Ivanov. However, the problem of the ideological content of architectural objects needs further research. We turn our attention to the information aspect of the interaction of the elements of the "architecture-society" system, as architecture, as well as for any systems, is characterized by the transfer, processing, and preservation of information.

Main content

The information transmission to a society of different content occurs through two different channels. First, it is visual information about the external architectural environment in accordance with society and its constituent elements. Visual perception of the architectural form is the primary link in the architecture-society system interaction. Mostly, it occurs outside the social activity of each member of society in the process of spatial displacements. Perception of architecture is not selective, have an effect upon a person regardless of his desire to perceive or do not perceive and is the main source of the formation of his thesaurus, aesthetic ideals, and preferences. An unsuccessfully designed and constructed architectural object or ensemble cannot be hidden like an unsuccessfully painted picture or a piece of music. Being designed, it is inevitably perceived, acts on our consciousness and forms our aesthetic ideals.

Another component of information is transferred to society in the process of socially active life of members of society. This is substantial information about the components and nature of social processes among the architectural environment. This is a social component of architectural information. The science researched this component quite deeply in various typological disciplines. At the same time, the first component needs further research.

The exchange of social and visual information between the architectural environment and society is an inseparable and interconnected process. Segmentation is acceptable for revealing their interaction and inter-conditionality in time. The consequence of visual perception of the architectural form is visual information, which in the creative process reflects in a new form. The last in the functional process forms a social setting, which requires the form improvement in accordance with social and technical experience. Improvement realizes upon certain activities. As a result, architecture form making is at a higher level.

Now let us turn to the content aspect of the architectural form. Above all, this is the thing, which the form contains in its material limits. If so, then its content is ambiguous. It can be viewed in terms of substantial or energy aspects. Ultimately, the form is obligatory characterized by an indicative character, its geometric and sensually perceived structure carries information through which certain visual images are formed. This is the information

aspect of the content. This aspect is the most attractive for architects. Moreover, this is natural. Few people, for example, are interested in the fact that very often the columns and entablature in Russian classicism were made of wood; they were hollow and were disguised by plaster as stone or concrete. No one is interested today, how much wood was spent on making such an order and how many calories can be obtained from its burning. However, the professional consumer of architecture, as well as the ordinary one is interested in a visual image it generates and what aesthetic qualities it has.

However, availability of three aspects of the content does not exhaust the multivalence of the form and its content. At the same time, let us remind factors, which determine the form in architecture. Primarily, these are functional (technological) and social processes, which are realized by given form. The form mediates the function (including social function) because it organizes it in a certain way (function). Does this mean that, by Ph. L Wright, "The form follows function?" It is possible, with some degree of a convention, to agree with Ph. Wright, if we mind those spatial boundaries of the form in which the functional (social) process takes place, i.e., the internal surfaces of the partitioning elements of the architectural object. It should be always remembered, that the internal form under the influence of external factors "dressed" in the material, making an external form. This form is supplemented by the elements that realize visual-communicative and image-composite functions, making a final external form. The inner and external forms always remain in relation to homomorphism, approximate mutual correspondence. This is caused both by the material of fences with its energy characteristics and external functions, which are mediated by the external outlines of the architectural object already as an internal boundary in accordance with this external function (for example, the interior of a closed area or a residential court.

Thus, the form can be internal and external, and there will never be a one-to-one correspondence between them. The architectural practice under the Egyptian pyramids to the present day confirms it. External functions are more diverse, and therefore more complicated is their influence on form making. It is possible to name only the basic, essential elements of a large system of functions, which the form follows. The hierarchy of functions is determined by the architectural object purpose. For a residential house, for example, the defining function will obviously be the counteracting function of natural and climatic influences, which is

aggressive with respect to the interior space of apartments, the function that the architectural object mediates. The defining function for an industrial object will be the technological process, and the determining feature for the bridge over the river will be strength and reliability. Equally important are the ideological and information functions of the architectural space. The first function confirms the social significance of the form and establishes the hierarchy of ideological and moral-aesthetic values. The second one is the function of realization and organization of the visual communication, which is primarily basic in relation to the ideological because without the transmission of visual information, its structure and semantics it is impossible to express the ideological essence of individual elements of the architectural space.

The algorithm "form follows the function" plays a crucial role in form making. At various times, it was differently realized in the creative process. For instance, in the era of functionalism, this formula was very productive and determined the creative method in those times. However, the function was limited only by the technological framework. Architects have achieved significant results in the planning organization of buildings. The internal form is automatically "dressed" in structures and materials, forming the structure that "follows" the inner function. Moreover, coming out into the external space, the architects could not distinguish the functions that the form should follow: the external technology was cut off from the architecture. The most evident technological flows - pedestrian and vehicle circulation - were satisfied with rationally drawn roads and sidewalks. The sporadic building of micro districts with its discontinuities, with diversified perspectives deep into the building, did not need to follow this transport function by its form. The courtyard, as a closed building space, which mediates the social function of communication and reunion of people, was also destroyed by sporadic building, and, forfeited its initial function, became both for pedestrians and for vehicles, also lost its original form. The society suffered social, psychological and aesthetic losses. The most noticeable losses we incur from the fact that we almost do not realize the information and ideological functions in architecture. Even in ideologically significant objects, we use formula "technology-form". This is the cheapest way to create the material cover for any social or production function. However, historical experience has shown that this way was unprofitable for society. This is proved by the sad consequences of

the struggle with the "excessiveness" of the USSR architecture in the 60th of the 20th century. Due to the mechanical disposal of architectural elements, the society received the "cheap architecture". This architecture cheapening cost a fortune to the society. Due to a significant decrease of the environmental informational content and its flexible filling, the curve of moral society has gone down, social and pathological phenomena have increased - alcoholism, drug addiction, prostitution and high level of criminality. Even the indicators of physical and psychosomatic diseases of people increased. It can be assumed that the clients of architecture, and creators-architects, and the authorities could not establish social priorities at that time.

The practice of dictatorship of authoritarian power existed in the 60s and 70s, its intervention in the creative process of architectural form-making, widespread introduction of the normative approach into architectural creativity unintentionally released or tamed the intuitive feelings of social priorities and their reflection in architecture. The total struggle against "excessiveness" devalued the ideological content of architecture; depriving it of those specific pictorial and expressive means by which (and no other), the form could follow an ideological function. Naturally, the same thing happened with the informative function of architecture. This function is even more than just ideological, it is devoid of any technological process, and thus one that does not lend itself to normalization, went far beyond the bounds of rational thinking and was also rejected under the slogan of struggle against formalism. Those what should "follow" the form was inappreciable, and therefore unnecessary.

The phrase "environmental informational content" was mentioned above. In this connection, it is necessary to clarify the term "information" and disclose its content. Information is understood not as background or statements about something, but as a system of differences in the architectural form elements. In a simplified version, it is a kind of diversity of architectural form or space. It can also be interpreted as a structurally ordered sculptural deepness of an architectural environment devoted to influence the emotional world of a person and provide visual comfort in the architectural environment perception. This is one of the most important functions, which the architectural form must follow. Moreover, this function is realized by using the compositional sequence of the architectural form and space.

Informational content, like the water salinity, needs quantitative features. The quantity of visually perceptible information can be determined with the help of a distinctive information model (1). The amount of visual information contained in the entity relationship of the dimensional structure can be determined by the formula:

$$\mathbf{u} = k \lg \frac{r_i}{r_j}, \quad (1)$$

where r_i and r_j are the elements of the dimensional structure, with $r_i > r_j$; In this case, we get a positive value of u ; k is a coefficient that takes into account the difference sensitivity of the human visual system; with sensitivity difference:

$$k = 76,56.$$

The amount of information u is measured by the number of elementary differences in the transition from r_i to r_j . The unit of information is the so-called “eler”, elementary difference. Summarizing the information, concluded in the relations of the elements throughout the information realm, we could receive the information characteristic whether a separate building or the whole complex, the ensemble into which it is included.

Visually perceived information must be structured according to levels: the level of the whole (the overall dimensions of the object), the parts of the whole, the level of elements and the level of details. Information arrangements between the ensemble buildings should be carried out at structural levels, i.e. taking into account the information connection.

The comfort of visual perception of architectural objects as well as aesthetic expressiveness of the architectural form is ensured by the information modularity of the entity relationship of the dimensional structure. The larger the informative module that unites individual connections, the higher their information "kinship", the less actions performs the visual system of a person and thus it is ensured the comfort of visual perception of the architectural form, its information unity.

Now let us turn to the main issue – the connection of form and content. The general content of the architectural form is the unification of separate contents: ideological, social, technological, structure-informative, semantic, and material, etc. In the mathematical sense, they intercross, i.e., some parts of the content that intercross, realize different functions. For

example, informational content (sculptural deepness) simultaneously reflects the ideological and figurative-compositional functions. However, each form must have its own form. That is, in a certain sense, when each form is congruent with its content. It turns out that the general architectural form should join separate forms: ideological, social, technological, etc. This means that if some form is congruent with several contents simultaneously, then it will unite into one form without changes. Nevertheless, if to some other separate content there is no appropriate form in many separate forms, it should appear as a consequence of this separate content and unite in the general form of the architectural object. For instance, in the Ukrainian temples of the Pridneprovye of the Baroque period, multitier completions do not carry any utilitarian functions, with the exception of the lower tier, in which the space for worshipper and liturgy is located. There are windows for lightening of the space in front of the altar. Gradually decreasing upwards towers, lanterns and domes, which formed elegant compositions, performed only ideological and informational functions.

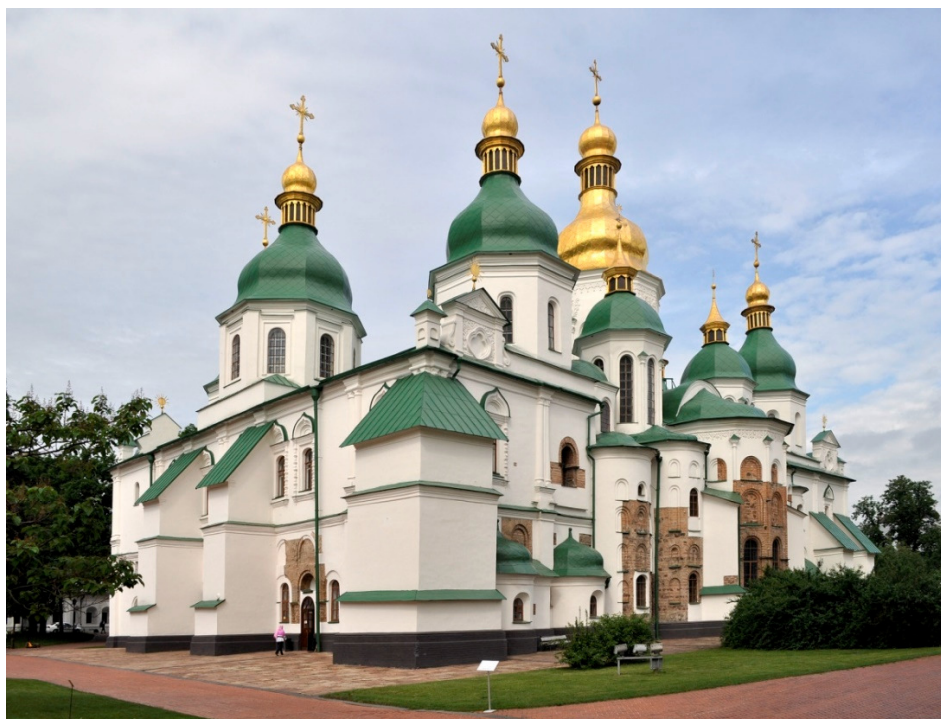


Fig. 1. The Cathedral of St. Sophia, Kiev, Ukraine

The same can be illustrated by the example of the Samarkand Mausoleum of the XIV century - Guri Amir (Fig. 2).

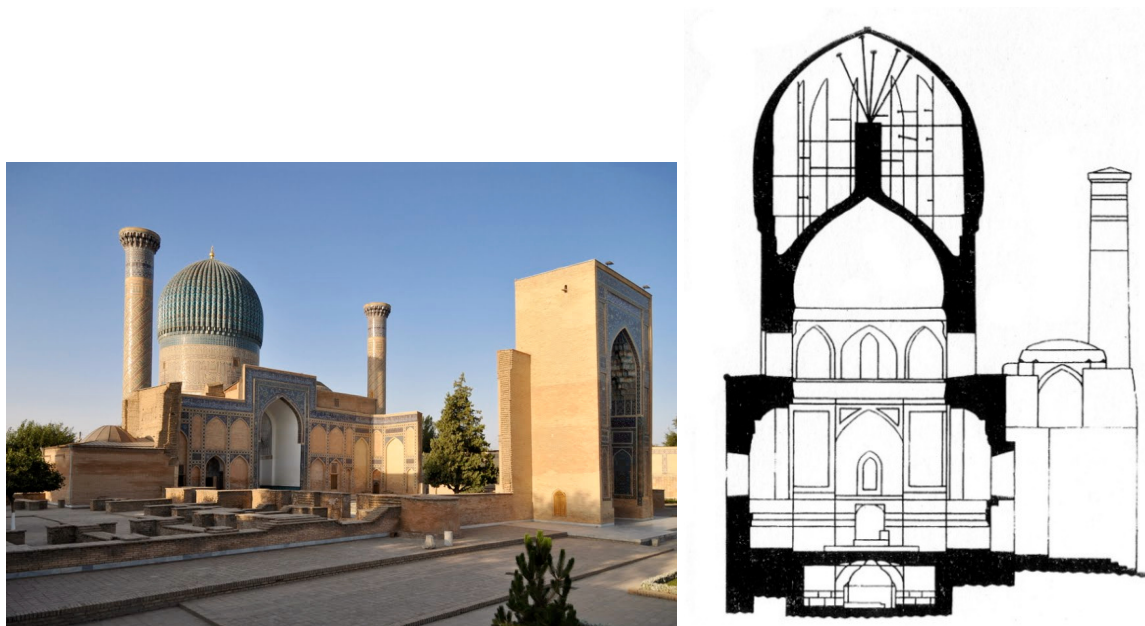


Fig. 2. Ensemble of Guri Amir in Samarkand (left). Sectional view of the building (right).

The monumental blue dome, glorifying the memory of the Great Timur, raises high above the constructive dome of the tomb. It was visible at a great distance; it incessantly had an effect on the mental world of its citizens and after the death of the ruler, caused obedience, love, and humility.

Today we witness an almost spontaneous development of the urban space with the architecture of the advertising nature of the most unexpected form and content. The problem of the architectural form cannot be removed from the agenda. In our opinion, it is necessary to think about the normative (quantitative) regulation of the architectural space. What should it be? We think that it should be quantitative and informative methods. However, this is an independent and very complicated conceptual problem, which is waiting for its research.

References

1. Alberti L.B. Ten Books on Architecture: in 2 volumes. BAA, 1935. – 392 p.
2. Aristotle. Metaphysics. – Moscow: Sozkgiz, 1934. Book. V. Ch. 6. – p. 83-86.
3. Ikonnikov A. V. Aesthetic problems of architecture. – Moscow: “Znanie”, 1970. – 46 p.

4. Lavrik G.I., Evreinov Y. N. About the problem of methodology in architecture. Architecture SSSZ. – 1969. – N2. – p. 29 – 34.
5. Tachikov I. N. The problems of architectural morphogenesis. Architecture, humanism, progress. – The NTI Center of civil engineering and architecture. – M.: 1967. – c. 27-33.
6. Negay G.A. Informational theory of proportionality in architecture. IV International scientific and practical internet conference “The state of modern building science – 2006”. – Collection of treatises. – Poltava: 2006. – p. 225-231.