

# Creative concepts as an idea to synthesize old and new architecture

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An article discusses a necessity of combination of historical and contemporary architectural concepts in the process of selection of strategy for sustainable urban development. Working out a dynamic balance between this two concepts provides sustainability of area development, which is required for incorporation of new architectural objects in existing structure of a city. At that, usage of historical architectural concepts will allow to preserve cultural identity of developed city, while usage of modern architects' concepts would promote quick reaction on continuously changing social, technical and ecological conditions of formation. An expressed hypothesis in the article regarding a necessity of such dynamic balance is illustrated with interaction of historical concept of ensemble development of urban space with modern architects' concepts based on combination of elements of live and inanimate nature. Interaction of these concepts occurs after assessment of an ensemble potential state or potential of ensemble self-development of a particular urban space. This helps to determine probable directions of urban space development in line with already incorporated genetic program (peculiarities) of formation of an examined territory. Considering determined ensemble potential the following options of usage of modern architectural concepts which are based on combination of live and inanimate nature elements are suggested: for regeneration of at one time destroyed or degrading districts by means of inclusion of new unique buildings and complexes; for increase of importance of reorganized urban spaces at incorporation of architectural and city developments objects as well as engineering infrastructure objects; for enrichment of city environment by employing natural structures and materials, imitations of relief, landscape, natural texture in developed objects and complexes. Foregoing the above, combination of historical and modern concepts discussed in the article would provide maintenance of urban spaces in the state of sustainable development.

**Keywords:** historical architectural concepts, new unique buildings and complexes, historical concept of ensemble development, elements of live and inanimate nature, urban space.

## Introduction

There is a number of factors affecting a comfort presence and full life activity of a human being in a modern city space. Along with the degree of organization of urban planning itself and quality of the urban development, those factors are ecological situation, social-physiological and transportation aspects as well as complicated economical relationships, modern technology in industry and many others. And where such factors are not in balance, in the rapid development new, and sometimes very original buildings and complexes are introducing substantial changes to the complicated and historically formed structure and remarkable image of a developing city. As a result, an increase of tension in the urban space takes place due to accumulation of style, image and conceptual contradictions between developing and existing architectural objects. All this usually leads to formation of imbalance and instability in the space of modern cities.

The said trends in the city space planning could be overcome, in the first instance, by architectures using the concepts that, at the existence of external influence, support preservation and improvement of current shape of the existing city space or its separate areas. That is a sustainability of the urban development which helps to improve the qual-

ity of the people life and restore distorted environment. The more so, it is well known that the integral structure of any developing city, if enriched with new elements, cannot be destructed as long as there is organic connection between the parts of such integral or, in other words, an ensemble's connection remains characterizing an art quality of an urban space. How true is the statement: «Sustainable architecture shall be aimed at addressing the needs of the present human generations at a high level of quality without taking out the same possibilities for future generations. The future is not possible if existing numerous scientific and engineering works of the «past» sustainable architecture, history of all architecture, traditional architecture» [1, p.76].

Therefore, the main purpose of this research is to demonstrate the ways the historical and modern architectural concepts could be combined in the context of the strategy of the sustainable urban development. To a large extent this could be supported by understanding of a world order which is actively formulated due to establishing of a new post-classic stage of science development. It allows to interpret in a new way an established categories of classical architecture theory and compare them with modern ideas in the field of sustainable development of urban space. Par-

ticularly, a modern philosophy states a necessity to consider a human being in the current processes as an active partner and creator and not only as an observer. This leads to formation of a new study approach, which is different from classical approach, and after that to formation of any architectural structure as and human-measured (social-cultural) system. «The specifics of the laboratory of culture is that it is absolutely non-post-classic: consciously or unconsciously, human being is, simultaneously, a creator and a tool and an object as to activity». [2, p.74]

At the beginning stage of formulation of strategy for sustainable urban development it is required to determine areas of usage of historical stable concepts as well as modern concepts addressing the challenges of the time. «Position of sustainable development makes to evaluate differently balance of «stable» and «changeable» in architecture. Its dynamic balance shall provide realization of principle of sustainability. At that, stable and changeable are the «elements of sustainability». [1, p.77] A such, historical architectural concepts – is something basic and tested by centuries which prevents from a loss of cultural identity of the developing city and, in essence, also stable. While modern architectural concepts represent prompt reaction to various changes, such as achievements of science and technology, external factors and internal needs affecting city development. An adequate response to those challenges also provides sustainability of city space development. Building up such a hierarchy in determination of strategic targets of future urban development would allow preserving orientation to continuity and following the most perspective innovation in formation of urban space.

### Historic architectural concepts in the contexts of sustainable urban development

Preservation of sustainable dynamic balance between existing buildings and more and more aggressive objects of modern architecture is only possible by means of their continuous dialog. A concept of «dialog in the structure of urban space» which implies «preservation of both, landscape and existing objects» and which is in line with a wide range of modern ideas – from ecology to semiology [3, p.680], is more and more spreading in the professional architectural community. Ensemble is one of the integral interlocutory common artistic structures. Various styles, images may exist liberally and synthetically and ideas and symbols may remain modern in it. Being an «alive» structure, an ensemble may be formed during long time and may serve as an original sustainable invariant of development of urban space. An architectural concept exploiting ensemble principles for linearly development or improvement of urban space can be named as ensemble's one. The roots of this historic concept come from XVIII century. Only at the current stage of science development ensemble's concept of development in full can be applied in the con-

text of strategy for sustainable urban development. Under the new information paradigm of culture it becomes clear that architectural ensemble «is not just a high piece of architecture art, a space having image and essence integrity, but represents an integral multiple structure at the stage of sustainable development and orientation, the purpose of movement of architectural space, the point of attraction at the stage of instability, in selection of direction (self organizing)» [4, p.81]. In its turn, pointing out communicative system in the multilevel system of ensemble entailed actualization of the role of a human being in the process of its evolution. This is because only in such case humanization of the process of sustainable urban development may take place in the context of ensemble concept considering world view, social, psychological targets. Communicative nature of ensemble by itself may appear in several directions, such as cultural trends (common cultural communication); organization of ensemble (space, visual and essential communication between objects); activity of architect (professional communication). Inside the above said directions and between them certain interaction arises at the transformation of urban space, which has ensemble potential. While designing a new object in the existing context an architect matches up his creative ideas with the peculiarities of time diverse environment, which are caused sometimes by spontaneous and even unintentional trends of culture. «Time diversity makes variety, while sustainability of semiotic architypes and set of cultural functions provides integrity». In such case ensemble is formed harmonically not due to the will of a constrictor, but as a realization of spontaneous trends of culture. Just as the shape of an organism's body, the borders, to which it will evaluate, are implied in the genetic program, the borders of the cultural completeness are implied in its structural elements. Any architectural building has a potential «to grow up to an ensemble» [3, p.682]. Such a view on an ensemble in architecture from the point of its interlocutory relationships (communicative features) changes the methods of transformation of existing development in the process of construction of new objects. This is because the introduced changes should consider an implied genetic program or potential of development, which needs transformation of urban space.

Sustainability of the concept of ensemble development relates to the fact that common features originally implied by principles of ensemble organization define origin of any changes. While transforming and going through various stages system of architectural ensemble imminently has internal purpose of its development, which indicates, among others, an existence of certain potential of ensemble self-development of a territory. In its turn, «potential of an ensemble self-development or ensemble potential can be defined as a degree of realization of the structural integral formed by creatively comprehended interlocutory consent of all components of architecture space» [5, p.130].

A research preceding a design encourage determination of ensemble potential of transforming space. All-around study of such space along with all information on its structural, creative and functional features an architect is familiar with, would give an option of determining potential ways to form future architectural ensemble. At that adheres to such requirement would provide a creation of open self-developing system of an ensemble. All following design activities will relate to its maintenance in a state of sustainable development based on determined potential of an ensemble. Specifically this is a way a «dialog» between a contemporary architect with other architects who worked in the same space could take place.

In the result of the discussed interaction, certain integrity appears which is keen to an ensemble of an urban space. A merge of such potential ensemble spaces with the existing ensembles of urban space into integral system would lead to a creation of urban ensemble. The most sustainable information and space connections inside the structure of city development ensemble define dominant group of ensembles, which is the most important one in terms of city image. It time an architectural ensemble, which is the most important one from the space and cultural standpoint is determined and becomes dominant combining all other ensembles. But the system of urban spaces formed during certain period of time should develop and be meaningfully actual for the contemporary human being by means of attraction of ideas of newest architecture. It is feasible to attain harmonic combination of the old and new with the help of determination of ensemble potential of urban spaces that develops actively. At that, certain «passportization» and simultaneous valuation of forming spaces will be required to assess its ensemble potential, and that would allow to analyze existing current situation in the urban structure after the long chaotic development of the recent years. Even today there are methods of determination and realization of ensemble potential of architectural urban spaces chosen for the construction of new objects. Such evaluation of ensemble potential of a particular urban space provides possibility to explore probable ways of its development in accordance with individual structure and peculiarities of a particular place. In the result, transformation of an urban space will go considering its ensemble potential using modern architectural concepts, which imply ideas for sustainable urban development.

### **Contemporary architectural concepts (XXI century) in the context of sustainable urban development**

Contemporary urban concepts shall not only bring extraordinary new and futuristic author's ideas, but also it should suggest well done and modern transformation of existing urban spaces for the purpose of regeneration and revival at one time well-known and important territories for the peo-

ple living in a city, region or country as a whole. This would help to resolve some social and economic problems in city development [6, p. 83]. The most interesting are architectural concepts created based on usage of various natural components (either in an explicit or hidden form), as such concepts represent and effective approach to form sustainability in urban space structure. Such architectural concepts resolve a set of actual projecting tasks, namely: possibility of integration of new objects into existing environment; synthesis of contemporary (shapes, materials, constructions) and traditional(historical) (forms, geometry, composition) approaches in architectural design as well as its harmonic cooperation. Besides that, such concepts are aimed at solution of various tasks such as city ecology, development and strengthening of areas of historical and cultural importance, creation and regeneration of positive architectural environment in the existing and new cities. From the total variability of concepts, we would outline the concepts, which can be used in the structure of developing city.

#### **Concept, which provides qualitative transformation of historically important micro regions of a city and thus represented by itself a comprehensive approach for sustainable design by means for bionics architecture**

One of the examples of application of such concept is a project of architect R.Piano for California academy of science in San-Francisco[7].

The main idea is the incorporation of the bionic form into the classically architecture of the building and thus demonstrates a successful example of a harmonious unification of different eras.

In his concept architect combined hi-tech and authentic (organic) forms connecting elements of classic construction – portico of the main facade.

The described concept can be used in urban spaces with a low social and cultural level, not high ensemble potential, minimal creative visualization. As a rule, such situation is typical for the places after catastrophes, and it is required to destruct many old buildings. Creation of a new structure in the process of design along with the reference to architecture of this place in past would allow to bring similar urban space out of deep dissonance.

#### **Concept of strengthening and development of infrastructure or the idea of “conciliation” of urban space, which regenerates and brings to a life empty and faded city areas**

This concept can be used at two levels. First one is the level of one area, where second one represent a whole city. In this regard, the set of tools and methods for resolving the problems of developing city will be slightly different.

The typical example of problem resolving at the level of one area is the project of famous architect S. Calatrava in Rio-de-Janeiro[10]. This museum of future day connected harbor with the city thus resolving the problem of degrad-

ing certain districts of historical city. The initial aim of such project was to conciliate the old and new districts of the city and to improve infrastructure. Besides, the museum project was realized to support modern culture of the country, its history and education in the region. By itself, an architectural idea of the museum volume was based on Bionics and represented a construction of unusual form associable with living body: insect. According to the author museum, building is incorporated suitably into environment and actively interacts with external world and has a harmonic organization of internal space. Such a construction could reanimate urban space, which is full of monuments of architecture.

Within the second level of application of the above concept resolving of city problems is attained by means of design of infrastructure facility. It is such facility, which are the objects of sustainable infrastructure. Due to the usage of similar concepts of engineering facilities an integration of a new object to the structure of the existing bridge is achieved. At that, a combination of two objects into one composition is declared to be a main task. For illustration purposes the following examples can be pointed out.

Footbridge «Helix» in Singapore, by «Architects 61» and «Cox Architecture».

This contemporary object in the city space is a connecting element between business center and the whole district of Singapore [8]. Its form represents helical structure.

Footbridge through Irwell river in Irwell River Park [13].

It connects a landscape zone of Salford fields with down-town and University of Manchester. At that, the foot bridge shall be a main orienting point of the whole riverside zone. The hopes related to the economic development of the city are placed on this project, as in the nearest future the city may become not only the cultural center of attraction but also a key field for carrying out large international festivals and forums.

Beam foot bridge «BP Bridge» which connected «Millennium-park» and park after Grant in Chicago by F. Gehry [9].

According to the thoughts of the author this bridge is to be not only a utilitarian urbanistic element, but an original symbol and architectural see sight with a view place to observe the city panorama. Being a multifunctional communicative city object, the bridge performs not only an infrastructure function, but also a sound isolation function as it is construction as a barrier between city park and highway.

Employment of these modern concepts is possible in urban spaces with a monotony of creative image, medium ensemble potential, low level of connections or even its full destruction. Regeneration of connections with surrounding nature and urban structures will renovate cultural information field of the reorganizing urban space and outline its specifics.

### **Concepts of integration and interaction of an object with environment based on usage of surrounding nature (water, relief, etc.)**

In these concepts natural environment of the architectural object is actively involved, so that an architectural form is incorporated harmonically into the environment, and there is an imitation in the subject of architectural construction. Such a context solution is justified by usage of materials of a natural structure, usage and imitation of relief, landscape and texture. The following projects can serve as an example of realization of such a concept.

The first example: incorporation of an object into water environment. Museum of Art Pingtama is an innovative cultural center located on a sailing island by designers of Beijing architectural bureau MAD. The concept of the museum building is represented by an artificial sea island connected with the shore by means of pontoon highway [11]. Currently this object of futuristic configuration is under construction. Flexible body of sailing building has streamlined form improved with aerodynamic tectonic. An internal space is organized also with flow-over spaces and its streamlined interaction.

The second example: incorporation of an object into a desert. Eco-hotel «Lotus» designed by bureau Plat Architects is located in Sianshavan (Goby desert, China) in a specific landscape, climate and geography [12]. One of the architects' tasks during the design was to ensure an effect on the region ecosystem is minimized. A «chzhen» idea used in the concept is typical for Chinese culture and mentality and can be translated as «ability to create repeated elements». In this particular case repeated elements are the rectangular spaces of hotel rooms. Construction of hotel in which electricity is generated by means of solar and wind energy, - is the first step in exploration of desert territory of the Internal Mongolia. Ecotourism will develop in accordance with a special definition – «Desert planning».

The third example: interaction with a relief. The project of winery «Ysios» by Santiago Calatrava is located at the bottom of Sierra de Cantabria, Spain. Organic concept is suggested by adoption of natural process by expressing an architectural structure as a landscape in order to support landscape and harmonically incorporate a new artificial object. The main purpose is not to imitate relief to make it irrecognizable and hidden, but to interact masterly with it [10].

The discussed concepts can be used in the urban spaces which require adherence to domination of natural environment image. A unity with nature takes place at a bright creative image of developed architectural structure. In its turn, accenting external and internal relationships would fix a high level of ensemble potential in that urban space.

As such, universalism of usage of nature components in organization and reorganization of complex structural elements of urban spaces consists in employment of basic principles aimed at improvement of a human life and effective execution of main functions: ecological, economic, esthetic, recreation, scientific, cultural [14].

## Conclusion

In selection of strategic targets for sustainable urban development contemporaneity and history should be combined. Historical architectural concepts, such as concept of ensemble development allows determination of the most optimal directions for incorporation of objects and complexes formed in accordance with modern architectural concepts. Usage of concepts which are based on combination of life nature and inanimate nature would help to regenerate destroyed or degrading areas by means of incorporation of unique structures. Employment of such structures would increase an importance of reorganized urban space by setting a new target for its sustainable development. Usage of natural structures and materials, employment of imitation of relief, landscape, natural texture in development of object and complexes would upgrade urban environment. However refraction of the discussed modern concepts through the prism of research of ensemble potential of urban space would provide subjective-objective understanding of its development sustainability. And in that case one wouldn't need to destroy the old and build the new, but should determine a vector of evolutionary movement, ensemble potential of a space, in other words. And after that the only thing to do is to support such space in the position of sustainable development. To the extent possible, decreasing an objective crisis time needed to develop a system. Determination of variety of potential ways of a system development provides each architect with a possibility of predicting consequences of particular architectural development activity which means possibility of expressing individual creative capabilities an architect has in his professional store. At that, an architect designing in the existing urban structure will be able to employ all the variability of methods and ideas including those related to components of natural environment.

## Bibliography

- [1] Yessaulov G.V. Sustainable architecture as a projecting paradigm (to the question of determination) / Yessaulov G.V. // Sustainable architecture: present and future. International symposium presentations, 17-18 November 2011. Scientific research of Moscow institute of architecture (state academy) and CIS Knauff group – M.: LLC “Adelant”, 2012. – P.76-79.
- [2] Budanov V.G. Methodology of synergy in post non-classic science and education / Budanov V.G. – M.: LKI publishing house, 2007. – 232p.
- [3] Lotman Y.M. Architecture in the context of culture / Y.M.Lotman // Semiosphere. – St.-Peterburg: “Arts – SPB”, 2001. – P.676-683.
- [4] Shipitsyna O.A. Architecture ensemble: perspectives of research from the standpoint of self-organizing theory / O.A. Shipitsyna, A.L.Margushin // Izvestiyavuzov. Construction. – 2010. - #5.- p. 77-82.
- [5] Shipitsyna O.A. Ensemble potential of architectural space / O.A. Shipitsyna, A.L.Margushin // Privolzhskiy scientific magazine. – 2010. - #1. – P. 128-133.
- [6] Saprykina N.A. Basics of dynamic formation in architecture: textbook for high schools / N.A. Saprykina. – M.: Architecture-S, 2005. – 312 p.
- [7] Academy out of academism, hi-tech and organic forms. Project of Renzo Piano for California academy of science // ABITANT – URL: //www.abitant.com
- [8] Helix Bridge in Singapore// ABITANT – URL: //www.abitant.com
- [9] Steel snake. The unique bridge by Frank Gehry// ABITANT – URL: //www.abitant.com
- [10] Santiago Calatrava. (2014) Architecture as a living organism [video lecture S.Calatrava ; the program „Polytech at Strelka”]/YouTube. 2 december (<https://www.youtube.com/watch?v=3Nvlzu956rE>)
- [11] Museum of Art Pingtama. An innovative cultural center on a floating island// ABITANT – URL: //www.abitant.com
- [12] Hotel in the desert// ABITANT – URL: //www.abitant.com
- [13] The conceptual design of the bridge „O”// ABITANT – URL: //www.abitant.com
- [14] Lebedev Y.S. Architectural bionics / Y.S. Lebedev. – M.: Stroyizdat, 1990. – 270p.

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