VIDEOMODELING IN ARCHITECTURE. INTRODUCTION INTO CONCERNED PROBLEMS

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Introduction

Since the very 1st year Russian Academy of Architecture and building sciences that was established in 1992 by the Presidents' decree as the higher scientific and creative organization in the country has always paid much attention to supporting and developing fundamental investigations in architecture, town-planning, building sciences, professional education and creative practice.

Study of the birth process of the architectural idea and searching for tools assisting the architect's creative activity and opportunities for adequate transfer of architectural image to potential consumer – relate to the number of problems which constantly bother the architectural community. Before turning to the conference, let us set certain conditions that have a significant impact on the development of architectural and construction activity in modern Russia.

Architecture in modern Russia

Market and profession

Novelty in a Russian architectural process is determined by a new and specific social order, various financial abilities of private customers (instead of the former state monopoly), by new structure and organization of the design activity (the emergence of private competitive architectural workshops, along with incorporated design institutes), by forming a new market of architectural and construction activity which involves foreign architects and firms, application of new construction and design techniques and technologies advancement of new creative forces, talented young people in architecture.

An important feature of architectural life in Russia of the beginning of the XXI century is the return to the practice of holding international contests – open contest with international participants for constructing the government block in Moscow-city (2002), customized international contest for second stage at Maryinsky theatre in St. Petersburg (2003). Practice of holding capital and regional project contests and tenders for constructing works develops. This process is now in a state of formation and development.

House-building in modern Russia

The most important part of architectural design activity is realization of housing policies: new construction, modernization and reconstruction of existing housing and public buildings of massive series of 1960 - 1970 decade, taking into account cost of energy, conservation and renewal of housing, slowdown of falling into dilapidation, as well as obtaining additional new housing and a higher level of comfort of the service system within the existing territory.

There is a growing interest among architects and builders to the problem of energy efficiency and ecology of buildings. For example, in the form of balance between blind and glass surfaces, application of curvilinear forms, new facade systems, building materials and constructions. Heat- and energy-saving, improving efficiency of constructions and materials, reduction of environmentally harmful substances – these are the main priorities for an architect now.

Preserving historic environment

The adoption of the Federal Law on Protection of Cultural Heritage (historical and cultural monuments) of the peoples of Russian Federation in 2002 has contributed to regulation of building up in a buffer zone, preservation of historic urban panorama and shapes, following a security guard urban policy. However, there is an intervention of newly-erected buildings that destroys architectural integrity of the urban architectural heritage. It's obvious that there's a need to solve problems of adapting monuments to the demands of XXI century. Particular attention should be paid to the heritage of vanguard of 1920 - 1930 years, architectural monuments of the XX century.

Much anxiety is caused by insufficient attention to preservation of authenticity of monuments and background building up during reconstructive and restoration works, introduction of imitation of buildings instead of their conservation.

Architecture in Culture

The place that architecture occupies in culture is of particular importance for the development of architecture.

Status: Today development of Russian culture takes place in collaboration of processes of globalization and regionalization, covering all areas of social life. It's obvious that architecture of the XXI century is born through integration of universal tendencies and local architectural traditions, which were much favored in our country especially in 1990s (maybe even to a greater extent than it is typical of other modern foreign regional architectural design schools).

Development of information technologies, penetration of internet web and distant ways of information transfer into man's environment, new telecommunication systems have a great impact on a modern culture. Especially sharply it is reflected in a world-perception of young people which is increasingly shaped by "visual culture", "unlimited" access to information and virtual modes of communication. Youth holds an active polylogue on a display, possessing high sensitivity to the "screen" information, getting used to the dialogue with computers since early childhood. Perhaps those ways and means of information transfer have a greater, not yet realized effect on the development of a personality of so called **Next** Generation.

Under these external conditions for the profession we can identify some trends in the development of Russian architecture.

Trends

At the turn of XX - XXI centuries historical architectural heritage in Russia along with neomodernist and innovative courses serves as a shaping resource ("modernization" of architecture), covering various phases of historical architecture. But for all that innovation was palliative; its achievements away from the severe restrictions of previous minimum standards were concluded in a freedom of interpretation.

That's not just post-modernism influence on the creative aims of the professional workshop. We may consider coincidence of social time of modern Russian culture and artistic forms of culture to be the reason for such condition. This overlap at some point does not meet the challenges of the line time, aspiring from past to the future, dialectically turning to the heritage without considering gaps in Russian architectural process in 1940 - 1950s and 1960 -1955s:

- Entry of Russian architects into the world architectural process.
- Turn of a number of Russian masters to the vanguard heritage. The interpretation of architecture of 1920-1930 decade acquires new content.

- Development of nonlinear architecture that is turned to natural images as well as to curve structures born in the interior of computers, and that is devoid of traditional tectonic systems.
- Increasing influence of ecological course, seeking to minimization of resources and to integration with technologies that will equalize human intervention into nature.
- Preservation of architectural urban heritage as cultural and ecological imperative that genetically allows development of global trends presently and in the future, as well as shaping, turned to the search for cultural identity of peoples, considering "the spirit of place", the nature of the landscape and climate.
- Development of computer design, involving design activity and architectural education.

Problems and actions

Under existing conditions of significant transformation of building up and new construction the theme of the conference is of particular importance. There is a need to understand problems of influence of the computer as a tool of designer on the architectural creativity and on architecture as art.

In a man-made artificial environment architecture integrates internal space and organizes the external one. Dramatic complexity of human activity dictates the need for new extra complicated spatial structures, designing which is absolutely impossible by traditional methods and is provided by computer. IT-technologies give us unprecedented prospects, as well as unexpected danger. For example optimization of t design by IT-technologies leads to some standardization of structures, simplification of connections on principles optimization.

Illusion of simplicity and ease of creating "virtual reality" awakes temptation for quick "creation" in many young designers (like other "rapid" desires). This is especially evident in the keenness on interior design of unprofessional community.

A severe decrease of planning time by replicating ready units, results in the reduction of "lifetime" of the constructions and their rapid moral ageing. This can also lead to the loss of traditional values, that perhaps is a natural effect in the process of acquiring new ones, born by the culture **Next.**

Architectural endoscopy was originally designed to find the most accurate picture of the architect's design from the level of a human eye. Today projects are developed gradually - conversationally by man and computer. Designer sets the direction for search, directs actions, the computer generates the final product. During such a dialogue visual information continuously and easily is replaced and converted. The screen becomes a source of understanding of the spatial and temporal relations created by an architect, of rhythmical pattern created by structuring of space, of light and color characteristics of the object.

Architect has got new means of transferring visual impressions aroused under perception of the planned spatial structures and material construction, as well as new means of disclosure them to customers and others who are involved in the process of evaluating the project. From these positions video modeling for training and for design activity has different methodological principles and methods to achieve the goal. In the first case student is a resultant subject, in the second - the project is.

Today former tools are largely absorbed by computer software. Mathematical modeling becomes the guarantor of the adequacy of the perception of the project idea. A different philosophy of visualization has become leading in presenting designer's ideas.

Nevertheless architectural project embodied by different means of representation stays an essential part of the designed and representative activity of an architect. Desire to reveal the

advantages and particularities of the project, to convince customers of expediency of the solution and to demonstrate the birth-process of architectural image - these are different components of a single process of project legitimization (firstly - in mind of the creator, in the end - in the notion of a customer).

The Venice Biennale 2004 "Metamorphosen of architecture" provided a wide range of exhibition opportunities, which define palette of a modern architect in the development and demonstration of project solutions of the search and presentation phases.

Models of different materials embodied different design stages: from the sketchy outlines to the detailed image of the construction, their shapes, their monumental plastics (works of Gery F., G. Lynn, Koophimmelblau etc.). Performed so professionally, such models are works of art themselves.

Video rows, disclosing sequence of changing contours of construction prior to the final shape has shown ways of search (A. Isozaki, the Academy of Contemporary Art, Beijing, 2003; C. Hall, the Museum of Contemporary Art, Helsinki, 1998). Besides some authors expressed the overall intent of their projects by means of painting (Zvi Hekker). Photos of the objects in different seasons and daytime gave the opportunity for a full disclose of the architect's ideas.

Along with traditional photo and video collages stereo images also were applied in order to create the presence effect for spectators. Stereo film dedicated to works of I. Leonidov was represented by CSA (Moscow).

Demonstration of the office project for Berlin by "Zauerbruch Hutton Architeks" company was an example of applying this technology. On entering the fenced space and taking glasses the one could feel himself inside the office, and "moving" along the walls after split-screen image could look at different rooms, as well as through the windows of the building and look at the environment outside.

In educational design works at Russian higher architectural schools and in Russian architectural design practice computer design and computer visualization, including movement inside and outside the object, have almost replaced the "manual graphics" and physical modeling. This is fully in line with trends of introduction IT-technologies and forming a "screen" culture. On the other hand, remaining "manual" architectural graphics and physical modeling assume their action field at the stages of search and displaying a ready solution.

Thus, each component of the path since the moment of birth of the idea till its representation assumes its role in forming final project solution. Taking into account unique creative features of an artist or a beginner architect exposure of significance of these roles and associated methods will still remain of much concern of researchers and educators.

Process of birth and demonstration of a project acquires new distinctions of interaction between man and computer, which demand more subtle understanding of the role of each of them in a creative work, and finding new ways of generating ideas by architects and their adequate identification by customers.