Arkology Approach To Building Multi-Story "Green" Buildings Suburbanities Environment

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Abstract. Today the external conditions of the living environment have a high degree of aggressiveness. From an environmental point of view modern high-rise buildings is not favorable. It actually is devoid of the close natural environment: vegetation is concentrated in the lower floors of buildings. Therefore, it requires the formation of an integrated approach to ensure bio-quality characteristics of the environment.

Theoretically, a modern approach to creating a positive living environment of the population reflects the innovative direction - arcology, requiring eco-dominant approach to the organization of the architectural environment with the provision of the comprehensive environmental comfort. This approach involves the formation of the architecture to provide eco-quality environment required for human life. One of the ways is the inclusion of phytocomponents in the spatial structure of buildings to ensure comprehensive optimization of space.

The basis of this direction is the actual current conditions, which have recently become an important factor in organizing the space. This form of mass building and sits architectural embodiment, which forms the aurchetype of the modern environment multi-story, enclosed building, devoid of natural landscape gardening.

1. Introduction
Development of modern areas of arboreta is negative on a number of factors. Peculiarity of formation of the negative of the urban environment is a systematic degradation of natural landscapes suburbanity.

As main factors the following should be noted:
1. Socio-economic and demographic factors
   Includes population growth and high concentration of population in cities and large settlements, since which significantly increases the population density and architectural funds; the increase of intensity of development by urbanhitektura and, as a consequence, the development of height and high density development; active motor development;
2. Urboecological factor
   Includes various types of pollution (dust, chemical, radiological and other);
3. Urban factor
Describes the formation of building along the highways;
4. Natural-technogenic factor
Includes the reduction of natural areas, fitofond; reduced insulating functions of vegetation; formation of abiotic environmental conditions.

Speaking about the requirements of a modern building (fig.1), it is necessary in addition to infrastructure development, appearance and architectural characteristics of the area, increasingly important environmental performance of the construction in many non-traditional aspects (aesthetic, functional, spiritual, and other). Architecture becomes completely out of scale man.
1.1 Figures in parts

When the realization of ecological significance in the development of modern arboreta (according to the evaluation standard BREEM) we are talking about creating a bio and spiritually-psihologicheski comfortable environment, including, providing visual comfort, air quality, indoor thermal comfort, acoustic performance and other. In this respect, comfort should be the auspiciousness of finding a person. Important in the evaluation of facility construction for compliance with "green" standard is given to the aspects of land use and ecology (LE 01 Site selection, LE 02 Ecological value of site and protection of ecological features, LE 03 Minimising impact on existing site ecology, LE 04 Enhancing site ecology).

Thus, considering the background of the current the archetype of the modern high-rise architecture, identifies its characteristic features of design solutions that do not satisfy the current needs of the population. However, this vector of development of modern architecture was justified by the need quickly, and often the most economically profitable to put into operation construction object. In view of that, designers often resort to the use of a retrospective standard solutions or projects re-use (the need to adopt cost-effective solutions due to historical conditions. The paradigm of time - to provide each resident of the regulatory environment).

Modern building must be considered from the standpoint of sustainable development [1], forming a comfortable living environment. In this connection, you need to talk about maximum conformity of the construction object to the environmental conditions (anthropogenic and natural). However, in this case, it is difficult to speak about stable operation of the construction object, its interaction with the environment. Today, the environment for each person cannot be depleted a component, that is, vegetation that is the principle of sustainability. Therefore, the appearance of "green" buildings is an act of time, which has to be the standard fixed.

2. Literature review

Today, ECO-building is becoming increasingly important in view of the need to revise existing standards in construction [2], including in the framework of public policies [3]. This is especially true in urbanized areas with massive population and high density of buildings. According to the study, these regions are most often in Metropolitan areas, capital cities, industrial centres, that is, large and major cities, various adverse characteristics of environmental indicators [4]. Repeatedly development trends and environmental discomfort was noted in articles in several European cities [5]. In [6] have addressed the impact of green spaces on environmental quality in the context of greening and beautification of urban areas. The impact of greening on the performance of the microclimate was considered by the example of many major cities of different countries, for example Serbia [7].

It was noted earlier, the influence of ecological factors on physical health and well-being of the population [8]. The article noted the development of territories from the point of view of the need to revise modern architectural solutions with the aim of improving the environment and livelihoods. For the first time introduced the concept of "ecologie" - as a way of greening the architectural space.

The ecological approach in architecture, as the main trends in the development of modern architecture was considered in [9]. However, the work mainly focuses on retrospective analysis and not on development proposals. Also discusses structural and functional aspects of the development of sustainable architecture.

The concept of "green" construction as a way of improving the qualitative characteristics of the environment discussed in A. Benois, M. A. Kolchigin [10]. From the point of view of sustainable development the concept of green building as the most effective, was considered in [11] and others.

The advantages of objects of green architecture for residential purpose in the example of the construction complex of the Udmurt Republic was considered in [12] and others.

However, due to the lack of developments in the field of technical regulation of "green" building, and also methodical grants and recommendations in designing "green" buildings, there are many difficulties in the construction sector. Some of them are associated with the operation of buildings.
Some of the difficulties associated with economic support and lack of experience of construction in our regional conditions, and most importantly, the unwillingness of society to accept this notion. In view of the above, today "green" construction requires an approach and to encourage its development [13].

3. Materials and methods

Not developed methods of mass "green" building and corresponding material base, which results in practice (even when implemented) when using individual solutions, which are not always fully take into account a combination of factors to ensure reliability of the structures.

4. Results

The quality of the environment largely characterized by the presence of green spaces. Green spaces are almost completely solves several problems of the modern arboreta:

• the positive impact of gardening as a recreational environment, on the ecological situation of the city;
• beneficial effect on biopsychic human;
• improve the aesthetic features of buildings and areas with dense buildings;
• maintenance of previously created or originally existing natural environment of the city, passing a forced change in the transition of society to a postindustrial period of development and changes in functions and structures of the urban environment.

The system of gardening in the context of modern development of arboreta can be represented by a set of different components photosysteme landscaping in different spaces. In the General structure of each component has the following effects:

1. Natural ingredients of natural landscape (forests, landscape education quasiperiodic and components of the natural complex, located in the adjacent areas, i.e., the space turned human) improved environmental quality;
2. External technological urban spaces (objects of landscape beautification of the urban environment: parks, squares, gardens, boulevards) to increase the required percentage of landscaping;
3. Landscaping architectural space of the building.

Considering landscaping as an alternative anthropogenic landscape, there is a need to talk about phitomeliorative environment [14]. Phitomeliorative involves the reconstruction of the existing housing stock, increases in the volume and area of planting, the use of special flora with high insulating ability, the placement of vegetation in areas with high anthropogenic load, the development of various methods of gardening buildings [15], the formation of urbanhealth structures with landscaping.

Urbanhitectura structure in General, urban development can be presented in various forms. These development objects in ekologicheskom approach involves the introduction of a comprehensive landscaping environment of several types. Improvement of urban space and provides for landscaping of outdoor and indoor space. In mind which side of the project requires a systematic approach to the formation of a "green" environment (arboreta, architectural, landscape).

The design of the architectural space of the buildings suggests the use of several types of improvement. Traditionally, landscape design, architectural space is represented by the introduction of potted plants in the interior of the house. These measures are aimed primarily at improving the aesthetic characteristics of the building, and requires environmental improvement. Thus, such events must have a common ground to improve the quality and aesthetic characteristics of the building. In retrospect it was, but to have personal.

Innovation needs to provide space for landscaping the interiors of buildings. This is what forms a "green" object. The concept envisages the creation of conditions for plant growth and can be implemented in a few: gardening, horizontal surfaces and front design.

You can highlight typological methods of greening of buildings forming a comprehensive improvement of the environment:

• In the horticultural areas of the territories;
• Improvement of surface of buildings;
• Improvement of the intermediate spaces;
• Landscaping the protected environment of the interior space of buildings.

5. Discussion

Greening the urban environment includes landscaping complete landscaping construction site. The formation of a "green" object can have two vectors of development: new construction and reconstruction. In new construction, the inclusion in the structure of the building landscaping is required at the design stage of a construction project. Renovation of existing buildings in the context of "green" standards, it is necessary to provide additional technical measures (examination of existing structures, strengthening of existing structures). From the point of view of architecture relates to the new functional requirements of the facility construction, reconstruction of objects of construction in the context of "green" construction, completion expected architectural elements for subsequent planting.

Based on the foregoing, environmentally friendly approach to the architectural development of arboreta is based on the following principles:

1. The principle of the universal greening of the environment

Involves the use of objects of "green" architecture as additional landscaping of the arboretum to improve its environmental performance. Involves the development of the green Fund and "green" buildings and structures in the city and family man, as a way of development of the greening.

2. The principle of the multifunctional nature of the environment and the availability of space

Involves consideration of various functional features of the building, fit for purpose, creating a convenient and comfortable environment, taking into account the functional purpose of the building foundations.

3. The principle object of social development

Includes the aesthetic appeal of the architectural-landscape environment for the person; the use of different types of landscaping facilities "green" architecture, the use of different elements of landscape beautification, the creation of the emotionally comfortable environment.

4. The principle of formation of coastal

Includes subject to the requirements of the environmental qualities at the same time, two users (humans and plants). Thus, the design process of green architecture needs to provide: an integrated approach to the design of the environment and the needs of the sanitary-hygienic requirements for the environment for humans, taking into account the needs of the environment, plant growth, to provide for additional construction.

5. The principle of constructive-technical support

Involves consideration of all factors of development of plant on environment at designing a base for the landscaping. Therefore, when designing buildings, green architecture must be considered when designing the supporting base load factors of plant growth, including additional loads, the impact of plants on the design to provide protection from the supporting base and enclosing strata, selection of plants, including root system development. It is also necessary to conduct regular field supervision at the construction stage.

In the development of "green" the facility needs to ensure that regular watering and moisture, drainage, sun - and wind-proof devices, lighting.

6. Principle aesthetics and environmental sustainability

Includes the aesthetic appeal of the architectural-landscape environment for the person; the use of different types of greening the "green" object, use the various elements of landscape beautification.

7. The principle of systemic organization of space

Involves the use, analysis and consideration of all factors, including: urban, architectural, climatic, ecological, economic, social, aesthetic and others. The application of the principle of the system organization allows the formation of the object is to solve not only local problems, but to consider the
totality of all factors influencing the system and conditions, as well as to consider and articulate issues that require development in related scientific disciplines.

8. The principle of maintenance of stable functioning

Assumes operation of the facility "green" architecture as a complex character, urban, architectural, technical and greening provide.

6. Insights

Awareness of all factors leads to the need to consider "green" as a set of architectural, environmental and technical aspects.

The object of green architecture in the context of sustainable development involves a comprehensive greening of urban and architectural space to reorganize and improve the environment. In mind that you can use in gardening single and/or multiple types at the same time.

To improve the environmental performance of the building should include activities for the selection of resistant plants with high insulating properties. It is necessary to consider the aesthetic component of building, and requirements for maintenance of landscaping associated with watering, fertilizing, pruning and other regular activities. Also important is the creation of permanent conditions for growing plants;

In the absence of requirements for technical regulation in construction "green" objects, additional favorable conditions for their development in the structure of development of urban areas and building mass, which is an objective trend of development of modern urban high-rise buildings;

The use of landscaping requires the solution of complex tasks, such as architectural and engineering purposes. A particular challenge stems from the fact that the solution to the problems associated with landing today at the mercy of designers, the lack of standards and guidelines for the development of "green" facilities;

The objects of the organization "green" architecture in accordance with the proposed principles for solving complex local and global problems: a comprehensive improvement of buildings, improving the comfort of environment with different functionality, improving the environmental sustainability of urban development and other.

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