

# Integrated Urban Design

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**Abstract** Currently, the issue of an integrated, interdisciplinary approach in the design of the urban environment is relevant, which is important to be taken into account when training specialists in the field of architecture. The purpose of this study is to introduce into the learning process the theoretical and methodological concept of the integrated organization of the spatial environment of the city, considering modern trends in the design of post-industrial society. The method of integrated design of urban environment model solves the problem of combining theory with practice in the training of architects. This method allows you to put science, arts and aesthetics, as well as the technical knowledge to the process of creative design. Integrated design implies application of fundamental and general knowledge of man, nature and society; and application of the theoretical foundations of urban planning science and landscape design. Integrated design implies selection and application in the creative process of new solutions in the field of construction physics, structures, materials science, planning and economics of design and construction; use of data on sociology, climatology, and environmental protection. This approach reveals the methods of design modeling, based on the peculiarities of the practical activities of the architect and offers effective ways to manage and organize the cognitive and creative activities of students. Updating previous experience when applying the integrated method of urban design helps to transfer the accumulated experience to solve the design problem, and better understand the architecture of the urban environment as a system with all its laws and patterns.

**Keywords** Urban Environment Design, Educational

Architectural Design, Ecology, Design Methodology

## 1. Introduction

The methodology of educational architectural design provides links between the scientific, theoretical, technical, artistic and compositional teaching in the process of creating a design model of an urban environment. The methodology reveals the methods of design modeling, proceeds from the features of the practical activity of an architect and offers effective ways to manage and organize the cognitive and creative activities of students. The integrated design method as a section of design theory aims to form the creative worldview of the future architect, teach him the creative method, exploratory constructive thinking, thoughtful and well-grounded compositional decision-making and understanding the patterns of formation of the architectural model of the urban environment. At the Eurasian National University. L.N. Gumilyov in Nur-Sultan students-architects master a comprehensive approach to organizing the material-spatial environment in the process of integrated design, considering social processes. They acquire proficiency of using the methods of typological, functional, economic and visual analysis, assessment and synthesis - techniques for assembling an integral system of an urban environment as an architectural object. As an independent field of design and artistic activity, the design of the urban environment has developed relatively-recently. It formed at the junction of subject design, architecture and urban planning. The

design of urban environment is not yet sufficiently understood by architectural theorists. There are no capital scientific works, which comprehensively cover the issues of the history and the theory of urban environment design, revealing its specifics, time and subject boundaries, and the main stages of development.

At the modern stage, urban design objects are often presented as a kind of addition to the architecture of the city, which, as a rule, is temporary, and therefore secondary. This generally corresponded to the doctrine of post-war industrial society, which gained force in the twentieth century. We see attempts at an integrated approach to urban design, mainly at the empirical level, in conceptual environmental projects. One of the first programs of comprehensive monumental, decorative and architectural and artistic design of cities appeared in the 1970s and 80s. They are presented in the most detail and theoretically understood at the departments of design of the architectural environment of the Moscow Art Institute (G.B. Minervin, V.T. Shimko, A.V. Efimov), then spread to other regions.

In special literature, the interaction of pairs was considered - "architecture and man," "architecture and city" (the works of urban planning theorist M. Barkhin, "City for Man" M. Posokhin, "Cities of the Future for Man" S. O. Khan-Magomedov and others) [1].

At the turn of the 20th-21st centuries, many major international publishers issued a number of voluminous monographs, illustrated atlases, catalogues and albums on the design of the outgoing 20th century, with articles and texts by famous art historians and design theorists. It is R. Baker [2], Bernhard E. Bürdek [3], Uta Abendroth, Karin Beate Phillips, Christian Pixis, Bernd Polster, Volkard Steinbach [4], Kathryn B.Hiesinger, George H. Marcus, Charlotte Fiell, Peter Fiell, Nicolaus Schröder [5], Penny Sparke, Claudia Neumann [6]. Most of them emphasize industrial subject design, graphic design, and the fashion industry. However, in these publications, as a rule, there is no section on the design of the urban environment as a separate design area.

Along with typological and historical directions, there is a whole group of studies in the field of cultural design, which consider design as a socio-cultural phenomenon, determining its role and place in design, artistic and universal human culture. Among them are publications by N.I. Barsukova [7], O.I. Genisaretsky [8], B.L. Glazychev [9], M.Kagan, K.M.Kantor, K.A.Kondratyeva [10]. However, narrow professional issues related to the methodology of shaping, compositional modeling, design, etc., in these studies are usually in the background and are not specifically considered.

The studies of theorists of architecture and urban planning in the field of organizing the architectural and subject-spatial environment of the city can overwhelmingly be attributed to the system pairs "city and man," or "city and design."

The first group includes works related to psychology and the organization of visual perception of the architectural

and spatial environment of the city by man: I.D. Artamonov [11], S.I. Vavilova, B.M. Velichkovsky, R. Gregory, D. Gregga, R. Arnkheyima [12], A .Yu. Becker, E.L. Belyaeva, J. Gibson, K. Dai, K. Lynch [13], I.I. Serdyuk, I.A. Strautmanis [14].

The second direction is mainly made up of research in the field of organizing various subsystems of the city: a color-light and graphic environment, visual communication systems and architectural and artistic design. Research by N.M.Belyaeva [15], Ya.P. Vinogradova, V.A. Glinkin, A.V. Efimova, V.I. Kravets color vision and color science - S.S. Alekseev, M. Deribere, D. Jadla, V.A. Zernov, I.V. Migalin, G. Freeling, G. Tsoigner [16], etc. Light design and evening architectural illumination of cities is considered in the works of researchers I.A. Azizyan, N. D.Graham, L. Monzer, N.V. Obolensky, M.A. Ostrovsky, N.I. Shepetkov [17], M.V. Tsarkov. A special area is "light art" in the city and its variations - "kinetism," "luminism," "light music," "light and sound performances" (V. Vazareli, B.M. Galeev, Ж. - M. Zharr, V.F. Koleychuk, P. Rober-Uden, N. Sheffer, G. Hof, H. Yamago) [18]. Theorist in the field of architectural education M. Barkhin devoted many works to describing the methodology of architectural design and an integrated approach in the design of the architectural environment.

## 2. Materials and Methods

The article reflects studies based on methods of scientific knowledge: analysis, synthesis, induction and deduction, using the analogy method. The study based on the methodology of system analysis, literary review, using the analysis and experience of teaching at the Department of Architecture.

As a result of the study a holistic view on solving problems of urban environment design in the form of a theoretical and methodological concept of a complex organization of the object-spatial environment of the city. It combines two methodological approaches to the organization of the spatial structure of the city:

- the traditional methodology of urban planning, based on the general scientific principle of deduction, which solves design tasks from strategic economic geography models and district planning schemes to general plans and projects of detailed planning of ensembles and individual architectural objects and improvement elements;
- an alternative approach, coming from a person, his subject environment to the organization of the subject-spatial environment and space-planning structures, based on the general scientific method of deduction. To identify modern trends in urban environment design, along with scientific and theoretical methods, project experiments, the empirical method of full-scale survey of urban environment design objects used, followed by

systematization and synthesis of results. The object of the author's full-time study and subsequent theoretical understanding was urban centers, including pedestrian streets. In the process of work, field studies carried out and material collected on landscape design, kinetic and interactive forms of the subject environment, corporate styles, visual communications, and architectural design of pedestrian zones.

- the entire process of scientific research can be divided into several stages. At the first stage of scientific research, data were collected:
- documentary sources of information (written, cartographic, pictorial), including published and unpublished scientific documents (information was used both in print and from electronic sources);
- data obtained empirically: while teaching disciplines at the Department of Architecture at the ENU named after L.N. Gumilyov (Nur-Sultan, Kazakhstan) for the period from 2015 to 2022; as a result of a full-scale survey of the architectural environment of the city of Nur-Sultan.

The design of the urban environment in both areas addressed to some extent; however, they are not the subject of special consideration. Moreover, urban design objects are often presented here as a kind of addition to the architecture of the city, which is, as a rule, temporary, and therefore secondary. This state of affairs as a whole corresponded to the doctrine of the post-war industrial society that gained momentum in the 20th century.

The study is based on four groups of scientific and methodological research and design experiments:

1. Author's historical and theoretical research in the field of urban environment design.
2. Theoretical courses in the system of training architects-designers.
3. Scientific, methodological and design concepts of the author in the field of urban environment design. Many years of experimental scientific and design developments based on the method of designing the urban environment in an architectural school, practical experience in landscape design and architectural and artistic design of a number of cities in Kazakhstan, creating pedestrian zones and landscaping urban centers used.
4. Works of domestic and foreign architectural scientists, philosophers, psychologists, ergonomists, art historians, historians and design theorists.

In the second phase of the study, systems analysis methods were used. The analysis and generalization of the data obtained during the first stage were carried out, goals were set, tasks were derived, and a working hypothesis was developed.

At the third stage of the study, the results were summarized, and general patterns were found, by processing and interpreting the results and experimental

data. A theoretical and methodological concept was built, and conclusions were formulated.

### 3. Results

#### 3.1. Scientific Approach in Integrated Design

Scientific and technical information used in the creative process creates the prerequisites for creating an original design solution for the urban environment. In practice, this carried out using experimental laboratory and research methods. Architectural design is seen as a practical test of theoretical provisions. Thus, theoretical knowledge is the initial conditions of project activity, and experimental instructional design is a test of knowledge, predictions and assumptions.

Students must understand the broad perspective of society, its needs and social conditions. Anticipating the requirements that will be imposed on the structures of the future is the content of advanced design in senior years and in the execution of a graduation project. The joint use of progressive methods helps to reveal to students the connections of architecture with science, economics, technology, ecology, as well as the environment, landscape, everyday life and the human psyche. The application of these methods provides professional training and the gradual development of students' creative abilities.

Urban planning environmental approach is becoming an organic part of architectural design. The degree of compositional unity of the new structure and the surrounding urban planning situation becomes a criterion for a comprehensive assessment of each architectural project. The collective visual analysis of the project and the exchange of information between teachers of different specialties and teaching departments, and the student leads to the integration of separate technical, economic, environmental, social and scientific knowledge in the design of the urban environment. It is advisable to discuss the student project by the consultants when the structure of the project model not yet fully understood. The purpose of the dialogue is to comprehensively reveal the problem, increase the speed of generating ideas related to the task of the project. A dynamic connection established between a student and a team of specialists - a multi-stage structure for making a design decision. The information received from the teachers, processed in graphic form by the student, returns to the consultants, who correct and clarify their recommendations.

This system contributes to the development of senior students' ability to justify and defend the selected design solutions. At the level of graduate design, there is a consultation on substantiating design solutions and comparing options. At the Eurasian National University. L.N. Gumilyov urban environment design as a form of individual disciplines is contained in the educational programs Architectural Design, Landscape Design along

with the disciplines of interior space design. The content of disciplines includes both the design of individual objects and fragments of the urban environment, and the development of its subject-spatial content. It varies approximately 40-50% of the total number of disciplines. At the Department of Architecture, the design of the urban environment studied in the all-educational programs. Designing an urban environment is a part of a cycle of disciplines in the architectural design of residential and public buildings, and disciplines in urban design.

In various universities in Kazakhstan, the availability of disciplines directly related to the design of the urban environment in educational programs varies from 30% to 70%, of the total, depending on the specialization.

The study by students of architectural design of the urban environment is relevant, since the modern urban environment in many regions of the Republic of Kazakhstan and abroad still needs reconstruction, improvement of visual, environmental, social qualities. Despite the understanding of the importance of integrated design of urban space and the relevance of this issue, the harmonization of the urban environment sometimes violated during the design and implementation of architectural objects. In turn, this negatively affects the psychophysiological state of people, as evidenced by studies on video ecology and pollution of the visual environment. V.A. Filin introduced the term of video ecology in 1989 [19]. It inextricably linked with the visual perception of the urban environment.

Many modern scientists address the problems of environmental design and anthropogenic landscape, noting that currently there is an active introduction of design into the urban space, which, in most cases, is spontaneous. There is also a tendency towards orientation of the modern post-industrial society towards the human factor and towards improving the quality of human life.

### **3.2. Comprehensive Engineering and Technical Training of Architects**

An integrated method applied at the beginning of training in architectural design of the urban environment. The teacher reveals to the students the complexity of tasks and understanding of the environment architecture as a system with all its regularities. The student gains knowledge in several disciplines and the teacher in architectural design combines this knowledge and teaches them to apply it in practice. In the process of integrated design, students can face questions that are not addressed by teachers in related disciplines, since these issues are related to the student's creative intention, a specific urban planning situation and are dictated by individual design conditions.

Teachers of engineering departments currently carry out technical and engineering training in the form of lectures, laboratory and practical exercises, coursework and projects in isolation from architectural design classes. From a

didactic point of view, this is significantly inferior to exercises that a student can perform according to his own project. In the diversity of reality, revealed in the creative process of architectural design, solving an engineering and technical problem causes difficulties for students, overcoming which a great cognitive effect achieved.

The integrated design methodology proposes to link the entire system of teaching scientific and technical disciplines with an architectural project by carrying out structural and technical design directly on student author's works on the "Architectural project", with the participation of specialists in different fields of knowledge. This method can provide training for an architect who is able to create an appropriate living environment, use a variety of materials and structures, the possibilities of new construction methods, apply technical advances and solve the multifaceted challenges facing modern architecture.

The introduction of an integrated method into the practice of educational design is fraught with some difficulties. The main obstacles in the construction of complex course design: the chronological sequence of studying different disciplines and the difficulty in combining the timing of practical work in these disciplines with project assignments. There is inconsistency in the requirements of managers and consultants on various issues in different departments; inadequacy of curriculum in technical disciplines to the integrated method. Therefore, the introduction of an integrated method requires a revision of curricula, considering the specifics of design. The educational and practical effect of the application of the complex method is so significant that its implementation significantly increases the quality of professional training of future specialists.

The complex method in coursework educational design in senior courses was carried out in three forms: consultations conducted by teachers of related disciplines in the process of architectural design; complex execution of technical sections directly on the training project. "End-to-end" design provides for the execution of engineering and technical sections based on the author's project in parallel or after the delivery of the architectural project. The essence of integrated end-to-end design is linking all engineering and technical issues with the course project.

The process of teaching complex design was considered as a system that regulates its activities based on the exchange of information between teachers of different specialties and the students in the order of direct and feedback through the design object. The integrated method provides a choice of structural and technical solutions in accordance with the architectural concept; promotes the application of diverse technical knowledge; develops a synthetic way of thinking; and serves for close contact of teachers of architecture and technical departments.

An integrated method increases the prestige of engineering and technical disciplines and the authority of teachers of the engineering cycle; serves to gain experience

in the participation of teachers in the creative process; contributes to the development of a unified teaching methodology; and allows teachers of technical departments to use examples from educational architectural design when giving lectures.

The methods of work of teachers of technical disciplines with students are changing from course to course in order to promote the growth of independence in the work of students, as the range of their knowledge and skills expands. The complex method increases the practical effect of suggestions and recommendations in the third year, from assistance in choosing a constructive solution in the fourth year. On the 5th year of study, it is advisable to criticize the engineering solutions chosen by students independently. This system contributes to the development of students' ability to justify and defend the selected engineering solutions.

Integrated design forms the student's ability for a creative process, in which there is no clear line between structural, technical, and architectural design. They are combined and coordinated. Classes in which there is a dialogue between a student and a teacher of a related profession serve as an example of the simultaneous work on architectural expression, constructive intent and on solving various technical problems.

For the organization and planning of project activities according to the methodology of integrated architectural design, it is recommended introducing coordinated curricula, in which tasks in related disciplines related to the design topic. This is the source material for the development of assignments for the sections of integrated design.

It is advisable to start the participation of teachers from related departments in conducting simultaneous consultations with teachers-architects of student projects from the sketching stage. A multilateral analysis of student proposals leads not only to a deeper definition of the boundaries in which acceptable solutions lie, but also influences the choice and clarification of the concept itself and its implementation. Therefore, it is wrong to assume that a complex procedure can make design conflict-free. On the contrary, the exchange of opinions of specialists on the project reveals new problems and limitations that put the student in front of the need to find a compromise between different requirements for the object.

### **3.3. Integrated Design in the Urban Planning Environment**

When designing an object in an urban planning environment, the primary task is to consider the natural features of the place and preserve the positive properties of the natural landscape. This problem is in the center of attention of a student that includes a new object in the system of the urban environment or ensemble. First, the place and value of this object in the system are established. The subject of educational design of the architecture of an urban environment is, first, the disclosure of the interaction

of an object and an architectural space, which was understood as the design of an integral and dynamic environment, including social, natural, climatic, technological, urban planning, transport and other aspects of life processes.

The urban planning approach defines an architectural object as a part that is part of another more complex spatial system; acts in relation to it as a component. Volumetric and urban planning design brings the student closer to the development of an integrated design method, according to which objects become components of the ensemble.

For example, the main object is given the value of a static center in the square (it can be a large public building), and then the object is perceived as an island volume, viewed around. In another case, the value of the static dominant in the deep composition is set behind the object, and then the object closes the system and perceived as an eye point. In the third case, the object is included in the panoramic construction of the ensemble - the linear construction of equally significant objects. Finally, the object may turn out to be of secondary importance in the ensemble and its interpretation should correspond to its role. The importance of an architectural object in the ensemble predetermines its structure, large-scale structure, proportionality and plastic design.

Integrated design in the conditions of group lessons in the studio allows you to develop and compare for this type of structure a number of fundamentally different architectural and compositional techniques for constructing the planning structure of the urban environment, in which the convenience of communications and functional feasibility will be observed. In accordance with the methodological goals of integrated design, in some educational disciplines for the design of the urban environment, artistic and compositional tasks may prevail, in others - functional ones.

Rapid adaptation of the urban planning environment to changing social and functional requirements ensured by the design of open, open volumetric and spatial objects in which planning, structural and technical changes in the structure are possible. This solved, for example, using universal unsupported spaces, giving the planning structure flexibility as a basis for the variable redistribution of spaces; using the transformation method, using mobile constructive and technical means. The structural nature of the construction contributes to the physical unlimited growth of the object by its gradual expansion with a consistent perimeter construction (Le Corbusier's square spiral). The same effect achieved by attaching similar structural elements or using modular blocks with independent "life support". The problem of object enlargement takes on a special character when designing an object as part of an ensemble with the definition of its subordinate role and giving it a dynamic characteristic.

Forecasting the development of architectural objects in time requires solving issues of compositional integrity and completeness of the object at the stages of development.

The content of the architectural environment as an object of integrated design is expressed through the volume-spatial three-dimensional organization of life processes, considering the constructive, technical and material capabilities and means of shaping. The content of the urban environment as a design object reflects the cultural, social and aesthetic needs of society, determines the emergence of new volumetric-spatial structures. They developed by senior students who determine the visual openness of space, its flexibility, mutual penetration at different levels, the flow of space, and the use of various means of transforming space. The structure-forming role of the functional process in the formation of the design model of the urban environment revealed through the factors of movement and time. The organization of movement provides comfortable conditions and logic for the passage of the functional process.

When designing any unit, a student should consider the dynamics of the functional-rich urban environment with its cultural and historical heritage. The method of integrated architectural urban design simultaneously addresses the issues of volume and urban development; it considers each designed unit in the context of the entire urban environment.

### **3.4. An Economic Approach to the Integrated Design of the Urban Environment**

The scale of urban planning and capital construction in the modern era requires special attention to the economy. The requirements for the efficiency of design and construction in our society act as an objective law that has a regulatory influence on architectural activities designed to satisfy the material and spiritual needs of society at a reasonable minimum cost. The strength of the designer lies in the fact that he achieves the maximum artistic results, based on available resources and specific conditions [20]. Therefore, the higher architectural school attaches importance to the formation of economic thinking. The student must learn to consider a wide range of economic factors in a changing urban environment, as well search for alternatives that are more economical; selection of more economical options from functionally acceptable project solutions and its elements; make a feasibility study of the project solution.

Here the advantages of variant design were revealed, which allows assessing the state of the design object according to the most important criteria, including economic ones. Analysis of the cost of the designed object is one of the directions of the educational design strategy. Economics disciplines students put the creative process in a reasonable and expedient framework. In the process of integrated design, students test the principles of transformation and flexibility in the use of space in order to achieve economic and social efficiency and extend the life of the facility.

The questions of economic expediency are solved by

students when choosing the structure of development and the type of connections with communication nodes. Urban planning economy is solved in projects of a small town and a residential area with a degree in Architecture at the 4th year at the Eurasian National University. Students consider the efficiency of using the urban area, the compactness of residential areas, the expedient solution of transport problems, the optimization of the systems of cultural and consumer services, the number of stores and density of the housing stock, the gaps between houses.

The use of underground space, inconvenient lands was studied in architectural design. Based on the tasks of saving land, options worked out for the placement of terraced houses on the relief, garages in ravines for the third year.

### **3.5. Ecology and Landscape in the Integrated Design of the Urban Environment**

In educational design in the specialties of architecture and design at the Eurasian National University, the most important methodological and creative problem of the relationship between architecture, ecology and landscape is being solved [21,22].

Ecology as a basis for architectural design includes the environmental aspects of designing an urban environment, creating a healthy environment in and around buildings, landscape architecture, improving and protecting the environment by architectural means, social and spatial control of the environment and humans. Architectural ecology aimed at bringing people closer to nature, ridding them of the monotony of urban space, physical inactivity, the correct distribution of the population over the area, solving issues of greening the urban environment, isolating the population from traffic routes, and creating conditions for communication between people in the urban space.

As a new science, architectural ecology is constantly evolved and supplemented with new directions: visual ecology; the use of agriculture in architecture; the use of alternative energy sources in architecture. Landscaping as a necessary element of modern sustainable architecture will have an increasing impact on the appearance of the urban environment, buildings and engineering structures in the future. The task of architectural ecology is continuous environmental education and upbringing of city dwellers with the help of a beautiful and healthy architectural and landscape environment. The landscape is seen as a joint work of nature and man. Students learn to understand the essence of the ecological problem - the preservation of the natural landscape, unique vegetation, and the creation of favorable living conditions.

In the process of pre-project analysis on the themes of the village, residential area, tourist base, recreation area, students study the morphology of the relief, conduct natural landscape analysis, aesthetic visual and structural-spatial analyzes. Comprehensive design is used in the development of recreational areas and health centers. [23]. Addressing the aesthetics problems of urban spaces

implies working with new models of aesthetic cities for developing comprehensive urban planning [24]. In order to form the urban landscape, measures envisaged to improve the existing relief, soil cover and plantations, and to reclaim areas damaged in the process of human production activities. In educational design, landscape architecture solves the general problems of shaping the environment. Therefore, when developing the planning structure of a small town or residential area, they proceed from landscape analysis; considered the compositional possibilities of vegetation to create open and closed landscapes, landscapes and viewpoints. Students learn to use climatic factors in design, adapt their ideas to a complex of environmental conditions, overcome their inconsistency, make the most of the positive factors of the natural environment and climate, and neutralize the effect of uncomfortable environmental conditions.

#### 4. Discussions

Modern post-industrial civilization is focused on the "human factor": improving the quality of life of people and greening socio-economic development. A new type of relationship between man and nature was formed, as an organic part of the common human-society-nature system. To some extent, the existing situation in grandiosity and humanitarian orientation can be compared with the Renaissance. The approach to the design of the urban environment can be expressed by the interaction of many architectural, urban, social and environmental factors. A general view of the model is shown in Figure 1.

The proposed concept takes the organization of the object-spatial environment of the city to a qualitatively new level, correlating it with traditional methods of urban planning, on the one hand, and an individual person of the post-industrial society, on the other hand, considering its requests, value guidelines and ideas about comfort. Modern trends in urban design are considered. In it, for the first time, a person (consumer), design (subject) and city (space) are treated as components and interacting components of a single human-design-city triad, which is the main object of contemporary art design activities of the architect-designer to organize the object-spatial environment of the city.

Researchers distinguish various components of comfort: functional-technological, psychophysiological and emotional-aesthetic. The former is defined by functional processes occurring in an object and are related to the "technology" of human activity and behavior. Psychophysiological components are associated with biophysical manifestations of the human body and ergonomics.

The latter reflects certain aesthetic connections between man and nature as part of common ecological connections. A new stage has come in integrating multifunctional arts with anthropological morphology and the genesis of the personalized functioning of design objects. Just as today animals and plants cannot be understood outside of interconnected ecological chains, neither can architectural and urban design develop without understanding and integrating humans into a new environment.

A complex design method can form as a collection of many factors and interacting structures (Figure 2).

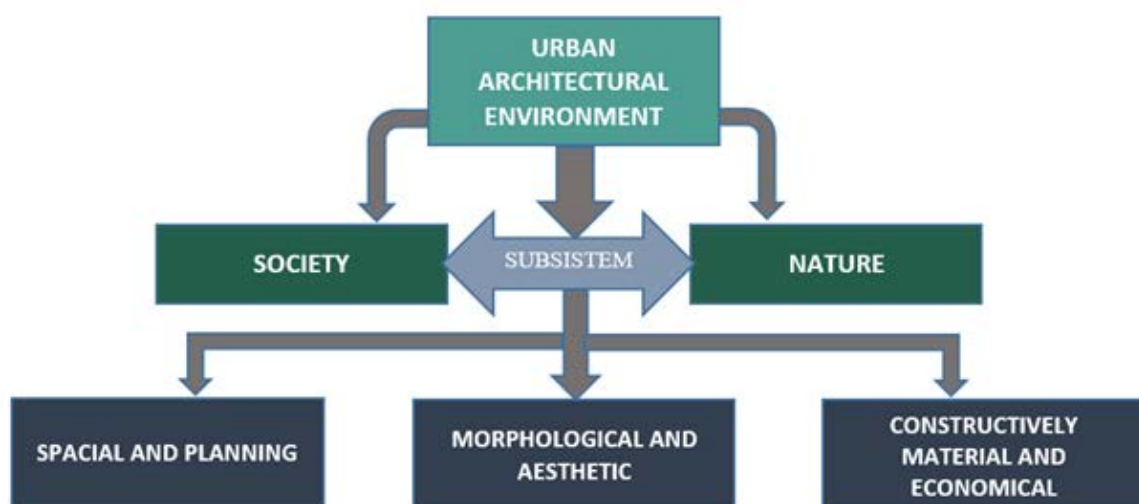


Figure 1. The approach to the formation of urban environment design

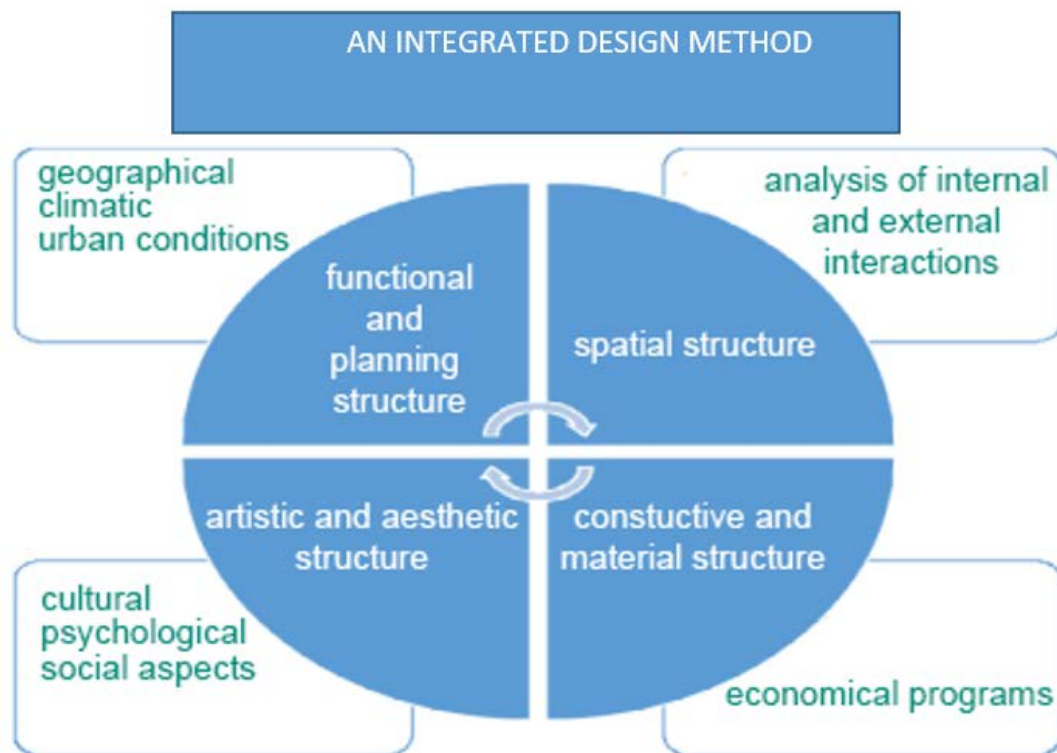


Figure 2. Integrated method of architectural urban environment design

The current active and large-scale introduction of design into the spatial environment of the city is still largely spontaneous, thus causing the need for an energetic search for a scientifically sound mechanism for managing this process in conjunction with solving the problems of architectural, artistic and planning organization of the spatial structure of the city.

Identification of modern progressive trends in the design and design of the city, the development of scientifically based principles, various conceptual and theoretical models of organizing the object-spatial environment of the city, reflecting modern trends of the post-industrial formation, become one of the central phenomena in fundamental research of architects, urban planners and designers.

Thus, three groups of problems determined the relevance of our study:

1. The current absence of capital works and comprehensive studies in the field of urban environment design, including the history of its formation and stages of development, the typology of objects forming the object-spatial environment of the city.
2. Lack of theoretical and methodological support for the modern organization of the subject-spatial environment of the city, including scientifically justified methodological principles and design techniques for organizing urban planning collaborates.

3. Dramatic changes in design at the object and subject levels, including the design of the urban environment, in the conditions of a post-industrial society.

All this determined the purpose of the present study. It was the development of a theoretical and methodological concept of the complex organization of the subject-spatial environment of the city, considering modern trends in the design of a post-industrial society.

All this determined the purpose of the present study. It was the development of a theoretical and methodological concept for the integrated organization of the design of the subject-spatial environment of the city, considering modern trends in the design of a post-industrial society.

The objective outlined the main objectives of the study:

1. in the framework of the study of the human-subject system, to reveal the main features of the development of design in the conditions of a modern post-industrial society;
2. Identify current trends in the organization of the object-spatial environment of the city (in the "design-city" system);
3. To develop a theoretical and methodological model of the complex organization of the subject-spatial environment of a modern city considering the "human factor" (construction of the human-design-city system).
4. Introduction of a comprehensive design method for designing the architectural environment of the city



into the educational process with detailed development of the design method.

The subject of the study is the methodology for organizing the design of the object-spatial environment of the city in conjunction with formation issues in design, architecture and urban planning in modern conditions:

- design form (subject, color, light, graphic - design aspect);
- Architectural form (spatial aspect);
- Urban planning form (spatial-planning aspect) in relation to the "human factor," reflecting as a result the work of the human-design-city triad system.

At the same time, special attention paid to the design of a manufactured urban environment of highly urbanized formations, in which many modern problems of urban environment design are most pronounced.

The subject of the study is the methodology for organizing the design of the object-spatial environment of the city in conjunction with formation issues in design, architecture and urban planning in modern conditions.

The study based on four groups of scientific and methodological research and design experiments:

1. Author's historical and theoretical research in the field of urban environment design.
2. Theoretical courses in the architect-designer training system.
3. Scientific, methodological and design concepts of author in the field of urban environment design. Many years of experimental scientific and design developments on the methodology of designing the urban environment in the architectural school, practical experience in landscaping and architectural and artistic design of a number of cities of Kazakhstan, on the creation of pedestrian zones and improvement of city centers were used.
4. Works of domestic and foreign scholars-architects, philosophers, psychologists, ergonomists, art historians, historians and design theorists.

## 5. Conclusions

One of the promising areas of post-industrial design today is the design of the architectural environment of the city, designed to provide a large-scale, informational, functionally and psychologically comfortable object-spatial environment for humans. It has its own separate project activity facility and an arsenal of research and design methods. At the same time, from architecture and urban planning, urban design adopted such features, features and features as ensembles, the desire for the uniqueness of a general compositional solution, imagery and artistic expressiveness, and the use of context. The methodology and philosophy of industrial design manifested in the use of high-tech methods in the production of urban planning elements, ergonomic design

methods. The method of "corporate styles" is used in the formation of elements of the subject content of the urban environment, current artistic and style trends.

The most important principle of architectural education in the field of urban design integrated learning was based on an integrated method. This method considered as a special cognitive and creative activity that serves to integrate the knowledge gained by students in various disciplines. The integrated training system focused on mastering the profession, is associated with the updating of previously acquired knowledge and with the creative transformation of new information.

The integrated method provides the development of the foundations of the designer's creative method as urban planning, functional, space planning, material, technical, ideological, artistic and multi-level modeling. The complex method provides for the strengthening of scientific and creative ties of teaching departments. It stimulates creative results based on new knowledge gained by the student's independent efforts, activates the student's mental and creative activity.

The complex method contributes to the solution of problems of interconnection in the project of strength, utility and beauty, the coordination of functional, constructive, technical and economic feasibility with the emotional and aesthetic expressiveness of the urban environment. An integrated design method in an architectural school proceeds from the tasks of teaching students to design a system person - environment, an environmental approach. The nature of social processes reflected in the organization of the material-spatial environment, which, in turn, affects the orderliness of life processes.

The effectiveness of training increases when the project assignment related to a specific situation, climate features, real natural or urban planning environment. Considering the specific urban planning situation in the design gives credibility to the subjective decision, prompts a creative thought, and gives the project additional artistic and emotional expressiveness. The integrated design forms the personal qualities of the student-architect - creative imagination, the ability to think critically and soberly, realistically assess the situation, to put forward original ideas.

The proposed synthetic model-concept brings the organization of the object-spatial environment of the city to a qualitatively new level, correlating it with traditional methods of urban planning, on the one hand, and the individual person, taking into account his requests, value guidelines and ideas about comfort, on the other hand. In it, a person (consumer), design (subject) and city (space) considered as components and mutually reinforcing components of a single triad "man-design-city," which is the main object of the architect's modern design activity when organizing the object-spatial environment of the city.

The study formed a holistic view on solving problems of urban environment design in the form of a theoretical and

methodological concept of integrated design of the organization of the object-spatial environment of the city. It combines two methodological approaches to the organization of the spatial structure of the city:

- traditional methodology of urban planning, which solves design tasks from strategic economic and geographical models and district planning schemes to general plans and projects of detailed planning of ensembles and individual architectural objects and improvement elements;
- an alternative approach from the person, his subject environment to the organization of the subject-spatial environment and spatial planning structures; based on the general scientific method of deduction.

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