



Creation of Dominant Elements in Light Architecture in the Organization of Urban Planning and Landscape Architecture in Uzbekistan (On the Example of Samarkand)

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Abstract: Relevance and necessity of the topic. The spectacular lighting of landmarks in many cities around the world, in which lighting engineers had previously played a major role and architects as officials who agreed on proposed solutions, has always attracted public interest in new improvement opportunities and new environmental standards shaped by lighting. These opportunities are steadily increasing due to advances in lighting and the improvement of living standards. For the profession of architect, according to the author, an objective and urgent need to master the art of lighting has matured not as an exotic, insignificant, engineering task, but as one of the multifaceted and promising "architectural" problems that must be solved in the process of designing the city and most of the objects in it along with and in combination with the traditional tasks of creating an urban, architectural and design form. With this formulation of the case, philosophy is enriched and the field of professional activity expands: architecture should be created not only for life in it and its perception during the day (this is one visual state of the surrounding world, but also at night, and at the same time look not like a simple repetition of the daytime (which is impossible in the exterior), but have its own characteristic figurative and emotional qualities. This should be considered the second visual state and architectural image of the urban environment.

The purpose of the topic. Rationing of artificial and natural lighting is the creation of a light environment that provides comfortable and safe working conditions, safe movement of pedestrians and transport, the effective functioning of video surveillance and video recording systems and the development of the concept of forming an artificial light environment of the city of Samarkand and the methodology of architectural and design activities of this sphere in Uzbekistan.

Key words: light architecture, modern architecture, artificial lighting, landscape architecture, light panorama of the city.

The architectural expressiveness of the historical and architectural monument as a whole and its individual elements is perceived differently in natural light. It depends not only on the time of year, but also on the time of day. The elements of the complex - the portal, minarets, domes, openwork decoration of lattice openings and others - are characterized by excellent visibility at noon and poor at dusk. This can be clearly seen, for example, when inspecting the complex of ensembles of ancient monuments of Samarkand - the Gur-Emir mausoleum and the madrasah

complexes of Registan Square. Different, emotional, effective perception depends on the contrast created by natural natural light. The contrast between the object of contemplation and the background created by sunlight is not the same on the ensemble complexes, although they are relatively close (in a radius of about)500 метров (Fig. 1). . Depending on the position of the solstice (sunrise and sunset), the elements of the monuments, due to the contrast between the illuminated and shaded surfaces, are perceived differently not only by the gur-Emir mausoleum, but also by the three madrassas of Registan Square ("Sher-Dor", "Ulugbek" and "Tilya-Kori"). This process of contemplation by man, naturally, we are not controllable, and therefore falling shadows, the appearance and place of which depend on the position of the sun, do not add expressiveness to the architectural appearance.

The "incompleteness" of natural lighting can be "compensated" by inspecting the historical monuments of Uzbekistan with the help of artificial lighting in the evening and at night. Elements and means of lighting architecture, being flexible and multivariate, may well cope with this task. With the help of means of light architecture, it is possible to form a "new" image of architectural monuments of antiquity, focusing on their significance. The main task of light architecture, architectural lighting is to create a single perceived whole complex or ensembles of architectural monuments of antiquity, and not to break them down into elements that are independent of each other. Techniques for lighting architecture involve the choice of various methods of lighting, brightness levels of monument objects, the color scheme of lighting of its various elements (facade, minarets, domes, interior, landscape, etc.), lighting modes.



Figure 1. Elements of the Complex of the Gur-Emir Mausoleum (Samarkand)

To create an artistic and compositional image of the object, the following variants of lighting techniques can be used, achieved by means of lighting architecture: general flood lighting, contrasting and local lighting, luminous facades, silhouette lighting, contour lighting, dynamic color lighting and others. In the arsenal of specialists in lighting architecture should be a whole set of tools to enhance the impression of an architectural object. The use of color filters or light sources that emit colored light and create unusual lighting effects is a powerful tool for creating a bright, memorable visual image of monuments and helps to distinguish it against the background of the night white-yellow-gray monotony.



The same techniques of light architecture can be used to illuminate the windows of shops, supermarkets, offices, restaurants and related light advertisements of the native environment and buildings. Light is a unique component of the evening city, transforming it beyond recognition, creating an unforgettable atmosphere.

Brightness and color determine the first impression of an object and allow us to assess the environment. Looking at buildings during the day and in different weather, we are convinced that its perception is different: during the transition from a clear sunny day to a cloudy one, the contrasts that determine the shape disappear, the volume of the building changes, sometimes the plasticity and expressiveness of architectural details (minarets, domes, glazed facade decoration, etc.) disappear. With a cloudy sky, the building loses the picturesque chiaroscuro, but the importance of its silhouette and color solution increases. Light images can be creatively "constructed" on the principle of associative similarity to daytime images as archetypes (for well-known objects - monuments) or the creation of alternative light "counter-images" with specific visual characteristics (for other objects and modern structures). The tasks and methods of this light-optical "design", carried out individually by each author of the project in accordance with his creative philosophy and real possibilities of the specifics of visual perception and features of architectural and landscape forms, are revealed.

Light is able to discover something new in every architectural object, create a festive atmosphere, illuminating city fountains, squares, boulevards and monuments with the help of colored lighting. Bright alleys, avenues, highways - all this will remind of the upcoming celebration. Light architecture, with its reliance on modern materials and technologies, allows you to conduct an "endless game" with space, hide or, conversely, emphasize the elements of structures, dramatically change the appearance of the city. During the holidays, it plays a huge role in creating an illusory world, a world of amazing unique images, and most importantly - gives rise to a festive mood.

There are seven main techniques of architectural lighting:

1. General flood lighting,
2. Local and zonal lighting;
3. Light facades;
4. Background/silhouette lighting;
5. Contour lighting;
6. Dynamic color lighting;
7. Projection of graphics on facades

1. General, flooding lighting is well suited for free-standing structures and cultural objects (mosques, monuments), as it preserves the holistic perception and majesty of the object. Flood lighting is provided by installing spotlight-type lamps at a distance from the illuminated object, most often on poles around it. The object stands out from the background of the environment because of the relatively greater brightness. It should be borne in mind, however, that the light directed at the building will pass through the windows, so the reception of flood lighting is not recommended for buildings where people are in the dark: hotels, business centers, residential buildings. The bright light hitting the window will only be annoying. Dynamic flood lighting often uses the effect of variable light levels on different parts of the object. Some revival of the object is created. To implement this technique, LED lamps of the type are suitable.



2. Local/zonal lighting is used to focus on the details of the facade: vaults, window openings, cornices, balconies, friezes. In order for the composition to be harmonious, it is necessary to link all the illuminated elements of the facade into a single composition. For accent lighting, medium and low power lamps mounted on the facade of the building are used. Architectural lamps of linear shape based on LEDs are also used, which have become an excellent replacement for bulky lighting installations with fluorescent lamps. To implement this technique, façade LED lamps are suitable.

3. Light facades. This technique is suitable for modern buildings with continuous glazing of facades: for business centers, administrative buildings, shopping and entertainment centers. Lighting equipment (monochromatic) is installed inside the room behind the glass and is directed to it. Thus, various lighting effects are obtained, with dynamics or static.

4. Background/silhouette lighting is an artistic effect that allows you to achieve the image of contour outlines of the shapes of the object without any details. Creates a crisp, clear and strong graphic image. The essence of the effect is to create a luminous background, in which the silhouette of the object appears dark or black. This effect is often used in the lighting of theater buildings and palaces with columns. Can be carried out by powerful LED floodlights.

5. Contour lighting is a fairly new technique. Linear luminaires highlight the contour of the building. The mass implementation of the illumination reception was made possible by the fact that cheap linear light sources appeared - LED rulers, flexible neon. They are installed throughout the facade by tens and hundreds of meters. They illuminate the contour of the building: for example, frieze, corners. FOR contour lighting, LED rulers are used.

6. Color dynamics. A method of illuminating facades with color synthesis, change of shades over time, extinction and increase in brightness. Techniques in the use of color-dynamic systems can be any of the above described: and flooding and accent and silhouette lighting. It uses controllable color-dynamic luminaires: LED rulers, spotlights, spotlights and other LED equipment. You can also create lightographic drawings in the form of luminous lines, dots that change color. Any luminaires with a change of color will do, depending on the required brightness - for example, LED rulers or more powerful linear lamps.

7. Lighting design and equipment selection. Lamps, spotlights, light sources. Professional design of lighting of building facades begins with a design project. Ideally, at the construction stage of the building, when it is not too late to lay electrical wiring to the installation points of the luminaires. It is the designer who must combine various lighting techniques, combine the aesthetic and technical parts of the project.

To introduce a systematic approach to solving light-composition problems of any kind and genre and to ensure priority as lighting of the environment to a pedestrian (before transport) in order to humanize the urban environment, a classification of urban space has been developed according to the nature of visual perception and behavior of people in pedestrian zones into three types - communication, movement, rest - with the definition of their characteristic features. It serves as the structural basis for light-color macro-, meso- and microzoning of urban areas and spaces in the development of light-planning projects of light-urban, light-ensemble tasks of landscape, ensemble and chamber scale. The typology of the scale of visual perception of the illuminated city and its objects is developed in relation to and for the purposes of lighting design. Light images can be creatively "constructed" on the principle of associative similarity to daytime images as archetypes (for well-known objects - monuments) or the creation of alternative light



"counter-images" with specific visual characteristics (for other objects and modern structures). The tasks and methods of this light-optical "design", carried out individually by each author of the project in accordance with his creative philosophy and real possibilities of the specifics of visual perception and features of architectural and landscape forms, are revealed. Such problems are solved with the help of various lighting installations by appropriate proportionalization of light, i.e. its light distribution in space, on the ground and on the surfaces of objects and the creation of differences perceived by the eye in the levels, chromaticity, techniques and kinetics of lighting, including according to the pairs of meters of the theoretical model. The choice of objects for light-volumetric design (as well as urban spaces for light space) is selective, which allows you to radically improve the visually perceived qualities of the environment, effectively showing a person in the city all the most valuable, original - cultural and historical heritage, natural and landscape sights, modern masterpieces - and leaving in the dark unworthy spaces and objects.

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