

LIGHT DECORATION OF A CITY AS AN ART INTERPRETATION OF ARCHITECTURAL BASIS (AS EXEMPLIFIED BY ASTANA)

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ABSTRACT

The article is dedicated to some features of design and light decoration arrangement of Astana City being the young capital of Republic of Kazakhstan. A specific character of artificial illumination use is revealed in the context of implementing the general plan of development of Astana designed by Kisho Kurokawa (黒川 紀章). By means of an on-site investigation, light use is studied as an expression facility taking an active part in formation of art-and-communication environment of the capital. Difficulties in the illumination arrangement at the present development stage are revealed. Conclusions are formulated and development prospective of the light decoration of the city is planned.

Keywords: light, colour, city light decoration, design culture, art-and-communication environment

1. INTRODUCTION

In the XXIth century, it is difficult to overestimate the light role in a city environment formation. The light is one of the most important of the seven main expressiveness facilities forming city environment aesthetics as a whole [1]. These facilities are as follows: colour and light, landscape design (paving, “green architecture”, etc.), city design to a great extent determining bridge, parapet, lattice, etc. pattern, easily built structures (pavilions, booths, etc.), creations of monumental and decorative art and outdoor advertising. A competent use of artificial light in a city space turns architecture ob-

jects and the city landscape into fantastic images of the night-time city.

Today, an artificial light extensively influences formation of art-and-communication environment of a city as it is a powerful tool in hands of specialists, which allows simulating various aspects of the environment aesthetic perception.

Retrospectively, aesthetic function of the artificial light in external illumination of objects, including advertising, became dominating already in the twenties of the XXth century. In the XXth century, understanding of artificial illumination as an independent element or section of architecture, and of light as an architectural material and a mean of art expressiveness for city environment was gradually formed.

Studying of illumination of the cities in most different contexts is considered in works of such scientists as C. Bartenbach, N. Bystryantseva, F. Vannerbeck, C. Vinkels, A. Guillo, V. Glazychev, N. Gusev, P. Zumter, A. Ikonnikov, G. Kamenskaya, W. Köhler, M. Klaasen, A. Kornilov, V. Luckhardt, V. Makarevich, M. Marini, M. Major, S. Mikhaylov, B. Munari, Yu. Nazarov, N. Obolensky, R. Narboni, D. Ponti, C. Santen, R. Sonnetto, M. Huber, V. Shimko, N. Shchepetkov, etc.

A. Kornilova, V. Laptev, E. Hvan and E. Horovetskaya turned to the question of light decoration of Astana in their studies. However, questions of the current state of illumination of Astana are studied insufficiently.

Leaving out of the brackets of this article such questions as visual perception psychology, interac-

tion of illumination types, safety, security and free orientation of citizens in space, sanitary and hygienic standards and economic problems of illumination, we will concentrate on art and aesthetic role and features of arranging artificial illumination as a part of arrangement of art-and-communication environment of Astana being the capital of Republic of Kazakhstan.

A purpose of this work was to reveal features of arrangement of artificial illumination in an interaction with development of architectural environment of Astana at the present stage. And the following tasks were set:

- To determine art and aesthetic outline of light decoration of Astana;
- To reveal interrelation of arrangement and application of artificial illumination in a modern city with development of art-and-communication environment of Astana;
- To study light use as an expression facility taking an active part in formation of art-and-communication environment of the capital.

2. LIGHT IN THE CONTEXT OF MODERN DESIGN CULTURE¹

With an active use of light as an expression facility of arranging social and spatial environment of a city “diverse multistylish architecture is now perceived as a uniform city ensemble to a large extent due to absolutely special, dynamic, constantly changing atmosphere of the streets depending not so much on architecture...” [2]. An artificial light interacts with architecture in four its main types and categories: space, volume, plasticity and colour. As a result, a light environment with new visual qualities is formed [3, p.190].

Within the modern science, most different terms in relation to light decoration of a city are used: “light decoration”, “light-decorative formation”, “light environment of a city”, “architectural and light image”, “light-art image”, “light urbanism”, “light design”.

In foreign design, the *lighting design* concept is used. In the informative sense, it is much wider than the light decoration and the local illumination of architectural objects. It means an intensely developing

field at the boundary of design, architecture, lighting engineering and decorative art. Such a modern direction of design development requires an entire system of town-building, architectural and design approaches, as well as a separate competence of the specialists. A confirmation of the light urbanism importance as a culture phenomenon is N.V. Bystryantseva’s conclusion that at the town-building level, it is a large-scale “work” of light within entire cities, in particular creation of general light plans of the cities and of their light frameworks [4, p.5].

Thus, an importance of light use in forming city environment is indisputable, and implementation of a competent, professionally verified artificial illumination is possible under the condition of attraction to illumination design of various direction specialists: architects and designers, lighting and electric engineers, as well as sociologists and psychologists. In such case, taking into account peculiarity of the specific city, identification of city space, psychological perception of the city by the population and guests are of a great importance [3, p.191]. Along with this, art and aesthetic properties of the light environment, which include integrity of light composition, informative efficiency, imaginative expressiveness and rationality of the light solution, are important [4, p. 14].

3. LIGHT DECORATION AS AN EXPRESSION FACILITY OF FORMING IMAGE OF THE CAPITAL OF REPUBLIC OF KAZAKHSTAN

The light decoration of Astana being the capital of Kazakhstan has its specific character, first of all in the historical context. From the beginning of 1991 and during the first years of independence of Kazakhstan, in all aspects of the city life connected with the search of the national identity, a new interpretation of the history from its various sides, with a choice of the further way of development, which was also reflected in light decoration of the city environment, cardinal changes began. After the capital was transferred from Almaty to Akmola (1997) renamed in 1998 into Astana, a swift city building was started. Light decoration as a part of the new art-and-communication environment of the city was

¹ Design culture is the highest level of the design sphere building itself over current design process of transformation and/or reconstruction of environment, over such its components as designing communities, design economy, designed parts of the environment and certainly over the design infrastructure, id est over the functional services providing a normal flow of the design process.



Fig. 1. The *Rixos President Astana* hotel. Photo of D. Chistoprudov, <http://www.titus.kz/>

intensely developed. Among other things, advertising information objects, various sign-boards, posters, decoration of building facades of the central highways, new symbols as memorials, small architectural forms, etc. have become to play a special role in it. In this context together with the change of style and aesthetic preferences, colour and light, as well as various details connecting concepts of presentation, comfort, usefulness, advertising and decorations have appeared in the city streets.

The general plan of Astana development designed by Kisho Kurokawa had been approved and started in 2001, and the city-building situation, the regional position of the city, the relief, climatic conditions and elements of the city space-planning composition had been took into consideration. This plan along with red lines², and with architectural and communication axes, determines features of the light solution of the new representative part of the city, which building was begun on Esil river left

bank. Thus in the project of Kisho Kurokawa, light is included in the general plan of the city development at a level of the city concept.

All these components considerable influenced art-and-communication image of the capital. Two directions were used when forming artificial illumination of architectural objects of Astana:

- The illumination arrangement of building facades, show-windows, canopies and marquees over entrances during day time;

- An arrangement of the city illumination during evening and night time.

The day-time illumination arrangement is a local illumination of signs, entrance elements, symbols, indicators, running lines and of most various promotional and informational objects. Methods of the day-time artificial illumination are most actively implemented in commercial public places: restaurants, supermarkets, shopping and entertaining centres. Along with it, in the main streets corresponding installations are used, which have a functional value and an obvious art advantages. So, positive solution examples of light decoration in Astana are boutiques, shops, restaurants, hotels of world brands, which using integral approaches to the problem solution, showed a competent light forming show-windows, sign-board, and marquees (Fig. 1). As a result, local illumination accentuates architectural features of buildings, at the same time, keeping show-windows and sign-boards at the forefront.

Illumination of the city at evening and night time is rapidly formed emphasising the city-building size, and places of interest [1]. Light panorama of evening Astana gains the peculiar art expres-

² The red lines are the lines, which designate existing, planned (changeable and newly formed) boundaries of public territories, boundaries of land sites, on which power lines, communication lines, pipelines, highways, railway lines and other similar constructions are located.



Fig. 2. Panorama of evening Astana. Photo of D. Chistoprudov, <http://www.titus.kz/>

siveness, draws attention of the capital inhabitants and guests (Fig. 2)

According to N.I. Shchepetkov's conclusions, architectural-and-art expressiveness of city ensembles and objects for all people whose attention is attracted by the evening city can be provided in the two conditions: initial creation of a "scenario" or of an art concept of the main composition and lighting methods, as well as coordination of all illumination systems [2]. It should be noticed in this context that light design of Astana has such facilities as lighting devices, different types of art local illumination, light-and-colour and dynamic effects, as well as light advertising. The above listed facilities have different potentials of form-building and of visual exposure on the city environment.

The performed field study showed that the most aesthetically expressive part of the light solution of the new left-bank part of the city is the Nur zhol boulevard (water-green boulevard), which is an axis of the whole city, from the Ak-orda president palace to the Aray garden (Fig. 3).

The basis of the composite light solution of the Nur zhol boulevard is a light ensemble with the Astana-Bayterek monument being a dominant of the light panorama (Fig. 4).

From 9 p.m. to 1 a.m., this structure of metal, glass and concrete of 105 metres general height is illuminated with 16 LED searchlights of a new generation, which are installed along the site perimeter. A modern system of the dynamic LED illumination based on the *Philips Colour Kinetics* equipment united into a general circuit by means of wireless *Wi-Fi* connection is put into operation in 2014. There are more than the 50 illumination scenarios in the system creating a uniform colourful filling. Easiness of adaptation of the local illumination to any scenarios gives a peculiar aesthetic attractiveness and gives tone to dynamic light effects of the whole boulevard.

A special individual light-composition interpretation of government and public buildings, as well as of multi-storey high-rise buildings of residential clusters of the left-bank part of the city, allows making architectural advantages of the building facades to be visible and expressive at the night time, and on the other hand, creates a peculiar visual version of the boulevard even it is under reconstruction.

The unique unparalleled in Kazakhstan project is a light-music fountain at the Nur Zhol boulevard. Luminous LED local illumination and numerous



Fig. 3. Evening illumination of the Ak-orda president palace. Photo of D. Chistoprudov, <http://www.titus.kz/>

modes of water effects give evidence of possibilities of the design thought in cooperation of architects, designers and light engineers. A harmonious merge of water and light following a magnificent classic music or the modern composer music, create a real water performance attracting the hundreds spectators.

The Nur Zhol boulevard general light ensemble is formed by a variety of the lighting installations, which are placed practically along all perimeters and themselves became a split-level small architectural forms setting a specific light rhythm to the whole boulevard.

From the other side of the boulevard Nur Zhol a unique ensemble of the Khan-shatyr shopping



Fig. 4. The Astana-Bayterek monument. This is an art and expressive dominant of the Nur Zhol boulevard. Photo of D. Chistoprudov, <http://www.titus.kz/>



Fig. 5. An evening view of the Khan-shatyr shopping and entertaining centre. Photo of D. Chistoprudov, <http://www.titus.kz/>

centre is located to complete the general light panorama (architect Norman Foster). This ensemble has a unique light decoration creating an illusion of a certain unreality and lightness of a building-dome as though soaring in air and shining from within (Fig. 5).

In process of an on-site investigation, it was found out that the following main features of the lighting arrangement of the Nur Zhol central boulevard city environment can be noticed:

- The light is an active composite element of the boulevard;
- An illumination devices form evening and night environment of the boulevard, and at the same time, they themselves are objects of specific small architectural forms;
- The functional separation of light sources takes place:
 - a) A lot of sodium lamps are placed along the whole boulevard, and they create a peculiar split-level horizontal illumination;
 - b) The sodium and LED lamps illuminate separate objects, first of all government and public buildings;
 - c) LED lamps are used to illuminate separate dominant architectural objects, such as the Astana-Bayterek monument.

Among other advantages, endurance of the used lighting equipment to atmospheric effects is an important quality, because this is significant taking into account complex climate conditions of Astana.

Design of the luminaires, formation of the light pattern and light rhythm, as well as creation of light-and-colour optical fields determine art features of the comprehensive illumination of the new left-bank part of the city.



Fig. 6. Evening illumination of the Saryarka bridge. Photo of the *Forbes.kz.* official site <http://forbes.kz/process/>

Light decoration of the Saryarka and Maral-2 bridges through Esil river connecting new left-bank and historical right-bank parts of Astana is an outstanding light solution of a highly professional level.

The bridge Saryarka is decorated with steles; its handrails are decorated with a national ornament. The narrow-directed light sources made the bridge one of the most beautiful places of the evening capital. Numerous variations of the light decoration create a theatrical scenery effect and emphasise a singularity of the national patterns (Fig. 6).

The bridge Maral-2 is the longest in Astana, and its light arrangement may accept interesting aesthetic embodiments. Within the light-and-colour solution of the bridge Maral-2, more than 40 scenarios of local illumination are used, which are change depending on the season. During winter months, the basic colour tone is red, because it creates a sensation of heat; during summer months, a blue shade is used.

Presence of a wide range of luminaires with *Philips* Company LEDs allowed “... designing a system of local illumination, which not only changed the bridges from the aesthetic point of view advantageously accentuating the national colouration of architectural and sculptural elements of these constructions but also increased their functionality” [5]. The possibility to take into account wishes of guests and of the residents when developing new variations of light decoration of the bridges is a reflection of the modern approach to creation of a comfortable visual environment of Astana.

Concerning the left-bank historical part of the city, its light decoration was embodied in some objects, such as the Kazakhstan sports ensemble, central embankment, and public gardens with small

architectural forms. As an example, the public garden at the Ministry of Finance, which light dominant is the Tree of Life fountain, can be mentioned. The used dynamic illumination and the changing colour solutions emphasise bizarre shapes of the fountain and create a fabulous sensation at the evening time. Light design of the fountain turned it into a cultural object and a resting place for city people. Together with it, besides an aesthetic value, the fountain bears a certain information load referring to the cultural and national traditions and reflecting the national idea.

By means of various spectra and of illumination dynamics, different versions or “scenarios” of the city illumination are used in Astana. The festive light decoration of the city deserves a special attention. The architecture itself, as if deviates to the second place during such days, to be a background for festive symbols of the capital.

In festive projects of temporary light decoration of Astana, architectural and art local illumination of buildings, light graphics on building facades, light-decorative structures, illumination of highways, bridge constructions and of city lighting supports are used. Light-dynamics panels, illumination light systems, such as garlands, light cords, mesh works like “duralight”, “kliplight” and “belt-lights”, as well as strobe lamps are also applied.

The history of the festive light decoration of Astana already includes brilliant measures. So, in 2013 during celebration of Nauryz being a holiday of the vernal equinox, a unique two-hour light-dynamics show took place at one city square. It was presented by a team of professionals under the leadership of a world famous designer Kurt Vermeulen. An artistic embodiment of the designer ideas by means of the latest lighting equipment was a delightful by visual perception action for inhabitants and guests of the capital. “We always experiment with new methods of developing the new methods of visual design... Attention is paid to several key elements within our projects. There are singularity, visual exposure, uniqueness and integration into the existing architecture among them. We are experimenting with new configurations, technologies and materials from unique places. Strengthening of symbiosis between our skills will allow us taking advantage of the available art experience in order to materialise our unique vision of light and creating works of art using light”, – Kurt Vermeulen says [6].

Supporting the capital status, measures during such holidays as the Republic Independence Day, the Capital Day, the Day of the first president of Republic of Kazakhstan and others, are widely carried out and generously formed using light-and-colour objects. In all three districts of the city, light-dynamics panels are usually installed and highway and city space illumination is arranged. Facades of office and residential buildings, small architectural forms, which decorate parks and public gardens of the capital, are shaped by means of light.

So for example, in honour of the Day of the capital in 2017, more than 70 festive events took place, most of which were arranged on open sites, and they all in their turn had a light decoration. More than 60 light-dynamic panels were installed; festive compositions and fountain LED installations were arranged, which metal frameworks were braided with LED tapes of blue and white cold colours with twinkle effect. More than 500 arm panels were installed.

A bright event was in Astana during the International specialised EXPO-2017 exhibition, which illumination solved functional, architectural, art and emotional tasks. A dynamic schedule of the three months period of the exhibition (from June 10 to September 10) reflecting every minute directly determined the light scenario.

Dynamic light according to the saturated rhythm of the exhibition life, created an event-and-spatial outline, which helped the participants and guests of the exhibition to understand intuitively location, sequence and order of the events, as well as to feel themselves being in the centre of festive exhibition events and to perceive an emotional lift transfused among other things by light.

Kazakhstan national pavilion shaped as a sphere (Fig. 7) was the central architectural and expressive object of the international specialised EXPO-2017 exhibition.

Facade of the national pavilion sphere was decorated with the 126 thousand LED bulbs, which “worked” together with a unique glass coating, for which special illumination design was developed. A gift for the townspeople to the EXPO-2017 exhibition opening day became a light arch installed on the central embankment. This structure of more than 100 metres long with a dynamic illumination and sound, which is beginning from the Astana Nury restaurant, became an aesthetically expressive bright spot.



Fig. 7. Evening illumination of the Kazakhstan national pavilion of the international specialised EXPO-2017 exhibition. Photo of the EXPO-2017 official site <http://www.expo2017astana.com/>

Thus, an attractive luxury of the most various light decorations gives the city a festive art image and aesthetics, and sets a special psychological perception. It should be noticed that in Astana namely in 2002, light dynamics was applied for the first time on a snow and ice construction as a festive decoration or a light arrangement.

The all aforesaid demonstrates development of an essentially new understanding of city environment in the young capital of Republic of Kazakhstan. Light becomes one of those universals of the modern world, which can be the basis of strategy of a new humanity including solution of the following problems:

- Formation of a social request for increase of aesthetic, art and ecological quality of a city environment;
- Revival of the public nature of public space, which now is a space of private interests;
- Affirmation of such categories as “place spirit”, “context” and “time spirit”, which are necessary conditions for group and personal identification in modern space of society and culture [7].

4. PRESENT DIFFICULTIES IN THE CITY DECORATION BY LIGHT AND PROSPECTIVES OF THE CITY LIGHT DESIGN DEVELOPMENT

The results of the performed study showed that despite positive trends of light decoration of a city, nevertheless, there are some difficulties in its arrangement at the present stage. They are as follows:

1. Local illumination of majority of the city objects is arranged in such a way that it switching

on and switching off are only automated in most cases. At the present time, a modern lighting equipment of new generation, which is able to change colour and luminance, to give dynamics, to add additional light elements is used only at some objects.

2. There are some objects in the city where illumination is behind the high level of building architecture. Among such objects are follows: Palace of Peace and Harmony, the Ministry of Transport and Communications (Transport Tower) building, the Family Town and Armand Kala buildings.

3. To create safety and comfort feelings of the city dwellers, light environment of the city is necessary to create, which preserves their health and solves problems of light support of building lower levels. As a rule, light decoration in the city only concerns top floors of high-rise buildings.

At present, an active work is performed in order to change-over to energy-effective LED illumination of the city. In 2015 a development of the town-building project of uniform light environment of the Astana city was started, which purpose was to change the practice of isolated and not interconnected design of external utilitarian, architectural, landscape and decorative illumination. Such a practice allowed forming in some cases disharmonious light spaces. The result was creation of the Light Environment Concept of the city, which was adopted in January, 2018. This is a reflection of practical steps of Republic of Kazakhstan towards the “green economics” transition. Using the state and private partnership mechanism, a system of intellectual illumination will be created in the capital. Use of energy saving technologies with a possibility to adjust radiation colour within a centralised RGB system control is provided for. Implementation of the new concept will become a basis to improve modern art and expressive energy-effective safe city space of Astana.

5. CONCLUSION

Thus, the performed studies allow drawing conclusions as follows:

1. Art and aesthetic outline of light decoration of Astana is determined by dynamic and extensive nature of its development.

2. The main factors influencing light decoration of the city as a part of the art-and-communication environment are as follows: administrative and territorial transformations (change of the city status), architectural and city-building transformations

(intensive construction of a new representative part of the city), historical and cultural motivations (recovery of own history and determination of further way of the development). One should also remember climate features (extreme continental climate) and relief conditions of free city spaces (rather long distances between architectural objects determining a specific character of light decoration).

3. Artificial illumination within the context of development of art-and-communication environment of Astana at the present stage is applied in two versions:

– Daily i.e. stationary illumination, with minimum facilities to use a prevailing white-yellow colour with a comparatively simple pattern. At some objects significant from the architectural point of view dynamic mode is used;

– Festive i.e. temporary thematic illumination during holidays.

4. Light as a mean of expression, which takes an active part in formation of art-and-communication environment of the city is used as follows:

– By means of aesthetically competent art and expressive light solutions at a level of separate architectural and expressive ensembles and objects;

– Using aesthetic expressiveness of two types of relations between light and architecture: a contrast opposition and shade coherence.

5. A conceptual competent maintenance of light use as a mean of expression when forming art-and-communication environment of the modern capital will allow with due performance giving a “frame basis” the all unique image of the city and accentuating its national colouration: ornament, symbolism, mythology, imagery, and metaphorical in dynamics of its historical and cultural development.

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Fig. 2. Panorama of evening Astana. Photo of D. Chistoprudov, <http://www.titus.kz/>

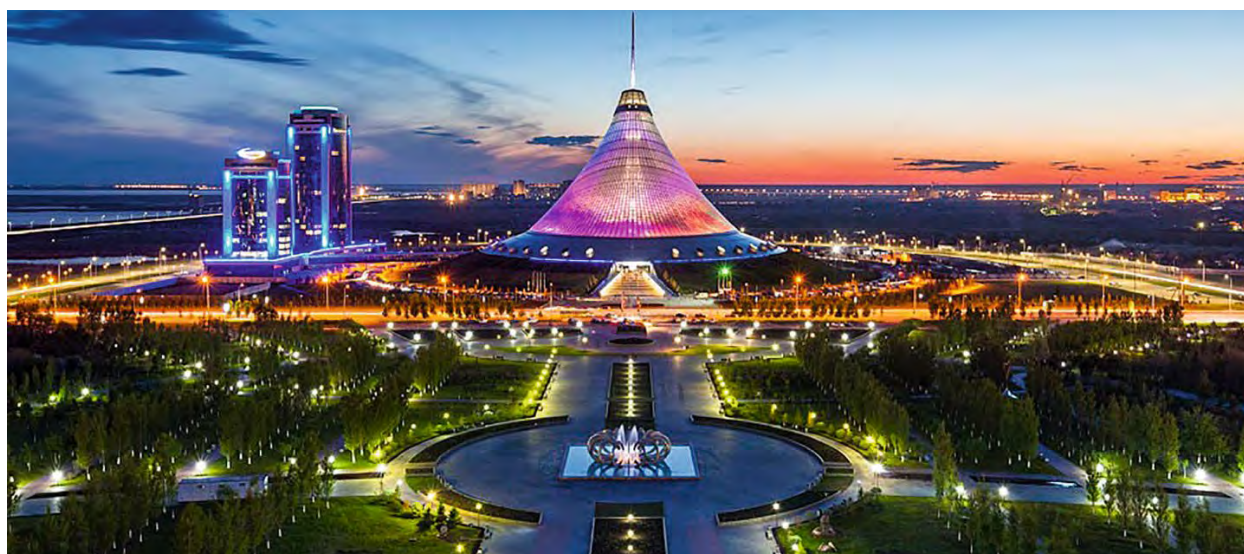


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