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THE INFLUENCE OF ILLUMINATION ON PERCEPTION OF URBAN ENVIRONMENT AT NIGHTTIME

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The article underlines the importance of night illumination for creating psychological and social comfort for people in urban environment. The paper also includes general recommendations for arranging exterior lighting based on artistic ideas, experimental results and normative documents.

Due to the modern lifestyle people move around the city in any hour of the day and night. In this respect it's architect's concern to find the ways how to organize safe, comfortable and aesthetically expressive urban environment, able to function not only during the daytime, but also at night.

Thus, illumination of architectural objects became a common thing and an obligatory part of engineer infrastructure in modern cities. It shapes the perception of urban environment in nighttime and in case of proper arrangement brings positive results. By highlighting pedestrian paths and traffic ways, certain buildings and public spaces a higher level of aesthetics, a safer surroundings and a better space orientation are gained. The artistic organization of open architectural space is traditionally projecting according to daylight conditions of visual perception. [1]. But the same place can create dramatically different impressions in a day and in a night time, when all the colors fade and only lights can counterchange flattened contrasts (Fig. 1).



Fig. 1. A panorama of Polotsk in a day and night time

Many imperceptible buildings can become dominant with the help of illumination. The materials for outside finishing integrate with surroundings differently. For example, large surfaces of translucent and mirror glazing have high percentage of gloss and slightly contrast urban scenery. And full glazing of facades is extremely popular in modern architecture of public buildings (retail, multifunctional, cultural, business). These buildings should be highlighted in nighttime, as it is necessary for spatial orientation of city dwellers, especially in winter period, when sunset fall within 4-5 p.m.

A good example of accenting public building with the means of illumination is the National Library in Minsk (Fig.2). The repository of the library in the form of rhombicuboctahedron covered with translucent panels is judged differently. From one side, it is a meaningful building for national architecture and a landmark for the city of Minsk, from the other – a dominating huge scaled faceted monolith. [2, p.179-180]. LED-based multi-colored lighting, arranged overall the façades of the repository, enabled to create dynamic illumination, capable to change patterns and to show moving advertisements. This solution made the building of National library a real landmark at nighttime as well.

Making accents of external lightning in the city it is also necessary to highlight historical and architectural monuments. Monuments, memorials and small architectural forms with all-round visibility should be highlighted from two and more sides with clearly marked main direction of luminous flux, which define the calculated surface. The surface should be associated on a compositional level with the main direction of visual perception [3]. The system of night illumination for the Cathedral of St. Sophia in Polotsk can be taken as the example to the rule. A vertical floodlight going from below makes the building a dominant object of the surroundings. From the

driveway to Polotsk on the left bank of Zapadnaya Dvina River, the first thing that catches an eye is an ermine white building of St. Sophia. Nevertheless, by the evening time St. Sophia is hardly seen without illumination (Fig. 3). In winter period, white facades do not contrast natural environment (Fig. 4). Therefore, a multicolored floodlight can improve the view at daytime, and by night, it could be switched to existing white.



Fig. 2. The National library of Republic of Belarus in a day and night time



Fig. 3. A panorama of St. Sophia's Cathedral in Polotsk in a day and night time

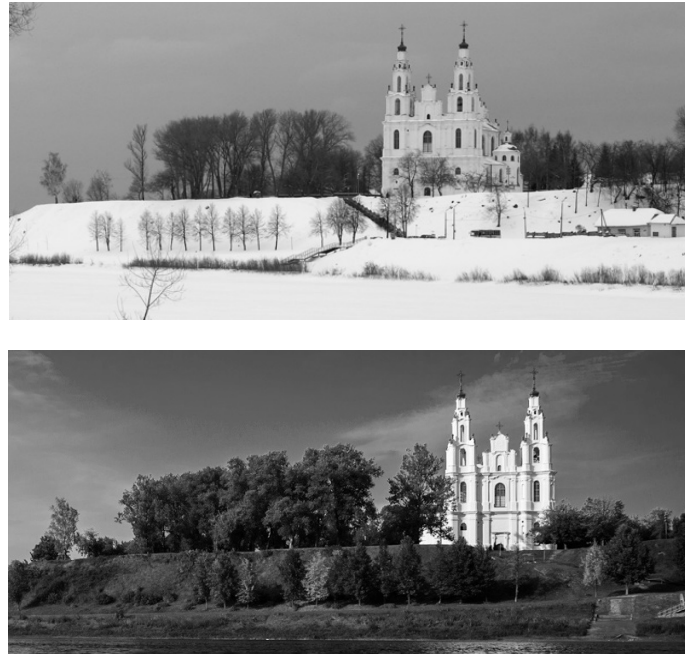


Fig. 4. A panorama of St. Sophia's Cathedral in Polotsk during winter and summer period

Night illumination is usually arranged for dominant objects like bridges, historical and architectural monuments, important public buildings. Highlighting the elements of landscape architecture – sculptures, memorials, street furniture, single trees (solitaires), groups of trees, fountains and so forth, enriches the view of night city as well. Illumination of architectural objects can be arranged in many ways: floodlight on the facades, counter light along cornices, highlighting of fretwork and ornaments, contrasting shade of columns to the background [1]. These lightning methods are accomplished by different types of lighting fixture and are used to gain a certain effect. Thus, accenting light can emphasize the tectonics of the building or break it, creating a visual impression of a new shape. Illumination is also able to redefine the contour of the building, which is very useful in districts where buildings have the same number of floors (only nine-storeyed, for example) (Fig. 5).



Fig. 5. Apartment buildings of Airport district in Polotsk, along the driveway to the city.
A day-time view (an existing situation) and a night-time view
(the design offer of illumination by V. Matveichuk and H.Tsimoshyna)

It is also necessary to mention how differently hues of artificial light can interrelate with the colors on the facades. We performed an experiment with four light tones (red, green, yellow, blue) of the same luminous intensity and colored papers of average saturation, varying only in hue and brightness characteristics. Observation showed that tones of dark surfaces are better distinguished under the warm light, while contrast between the bright tones is flat. The best level of contrast between colors and the most natural view of them was registered under the yellow light, as it is close to a daylight. Blue lights do not allow to see color hues, especially bright ones. Green lightings allow to distinguish more, but the hue contrast is still low, while brightness differences are seen clearly. Therefore, if the façade contains a polychromatic image or supergraphic

pattern it's better to use illumination with lights similar to natural. Red floodlight strongly covers all tones of the surface with red shade, leaving only brightness differences seen. Therefore, the use of red lightings should be limited, except of cases where it is necessary for artistic impression.

Normative standards for external illumination also state that for objects with "cold" color tones and plantations it is better to use discharge lamp with color temperature higher than 4000 C. Lights with the temperature below 3500 C can be used for illumination of objects colored in "warm" tones. For illumination of polychromic objects, especially decorative elements of the facades (mosaics, panel pictures, scratch-works etc.) it is better to use sources of white light with general color rendering index R_{\square} not less than 80. Sources of coloured lights are allowed for decorative illumination of objects of landscape architecture [3].

Light accents should be disposed along the pedestrian paths and transport ways. For the first, it provides safety and psychological comfort, for the second, leads to a certain destination. The position of light fixtures should be checked for avoidance of blinding lights in the central field of view of drivers and pedestrians on the main traffic directions. Otherwise, direct lights should be shielded by light-protective equipment [3].

In summary, it could be said that together with utilitarian necessity of external lighting of the city there is a developing tendency of raising the role of artistic issues in organization of urban environment at nighttime.

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ESTATE OF THE LANDLORD GLAZKO

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The following question are under analysis in the article: the history of land ownership and the formation of the old manor in Rossony, the peculiarities of its planning decisions, the characteristics of its architectural structure, the Manor Park, the water systems; the estate culture, art and heirlooms, the nature of farming and lifestyle of the owners. The article describes the present state of the estate, the importance of its conservation and new functional use.

Manors for centuries have been an integral part of the history and culture of Belarus. These complexes are the custodians of the traditions and customs. Libraries, art galleries, collections of rare things that have been preserved by several generations of owners have a great not only material but also cultural and historical value. Pan Glazko's estate in Rossony, Vitebsk region, is a unique architectural monument that dates from 1900.

The owner of the estate, the landlord Glazko, lived in the early twentieth century. The complex did not appear by accident. The landowner fell in love with the first beauty in Poland. She set a fan of the condition: «Build a castle like my father's one. It should be by the lake and there should be an island in the middle of the lake. In front of the building I want to see the waves of a round pond». Glazko made his beloved's wish come true. He had the good luck to win the money for the palace at the casino.

"The house with a hundred windows" is the nickname given by the locals to the picturesque house, built in 1900. The castle was built in the estate of Stanislavovo in accordance with the project by the architect Edmund Frick.

It should be noted that modern information sources call the magnificent building erected on the shore of Rossony Lake in many various ways. This building, in appearance resembling a gothic castle, got a lot of definitions - a palace, a palace complex, a manor, a manor house. An analysis of the terms leads to the conclusion that the most appropriate term is "manor". However, taking into account the enigma of the architectural composition, picturesqueness and majesty of the building, it's sometimes still appropriate to call the estate of Pan Glazko a palace and a castle (Pict.1).

It is difficult to determine the stylistic direction of the architecture of the manor. Some sources attribute it to the Gothic and neo-Gothic style, while romanticism is mentioned in the others. This is due to the fact that the estate was built at the crossroads of epochs.

On either side this masterpiece of architecture is perceived differently. The faceted towers on the roof and the tall narrow arched windows evoke associations with the London Westminster [1].