

APPLICATION OF COLOR ON FACADES IN THE FUNCTION OF CREATING VISUAL BENCHMARKING - CASE STUDY - RESIDENTIAL FACILITIES IN NOVI SAD -

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Summary: *By selecting an adequate architectural concept in a design phase, it is possible to create a distinctive city benchmark that stands out in relation to the immediate environment. Numerous parameters and design principles can be noticed when analyzing the morphology, geometric compositions and final expression on the facades of buildings on the territory of Novi Sad. As the residential typology is the most dominant and is implemented in all parts of the city, the subjects of research in this work were residential buildings that are visually dominant in their immediate and wider environment. The work will analyze buildings from the housing fund created at the end of the 20th and the beginning of the 21st century, or the post-socialist period of development of the city, which were built as massive dimensions, smaller housing complexes or lamellae and influence the formation of a recognizable image of the city, and thus, in the collective consciousness of the social community, represent the identity of the individual parts of the settlement. Evaluation criteria will be based on the perception of objects in which the emphasized geometric masses, forms and compositions of the assembly are the result of the dominant influence of color as the final element of architectural expression. In addition to the architectural, urban influences of the location, surrounding buildings, public areas and other relevant factors that affect the dominant perception of the form of the object and its facade, will also be evaluated.*

Keywords: *multifamily residential building, perception, urban landmark, Novi Sad*

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1. INTRODUCTION

A contemporary city is represented by a visual, functional and morphological heterogeneity incorporated into every field of the settlement. Urban wholes thus become unique entities, but without certain characteristics specific only to them, indicating that the identity of the centre of the settlement is the most prominent representative of historicity, authenticity and urbanity. This image is recognized in the case of Novi Sad, a city with over 320 years long history, whose genesis includes several developmental stages which simultaneously followed the prosperity of society, the strengthening of the will and desire for progress, and urban transformations that formed the image of the city as recognized today. Uneven development and urban changes conditioned the emergence of the city as a system in which individual urban segments exist, varying in many parameters. The absence of synchronization of built and unbuilt areas in the visual sense influences the perception and architectural disharmony, and the spaciousness itself depends on the morphological composition, coloristic expression, substantiality, authenticity.

"Architecture can be ordinary - or rather, conventional - in two ways: by how it was built or how it is seen" [1], indicating the two design principles and approaches to the construction of new facilities. The first implies acceptance of the local, assimilation and construction harmony with the surrounding and available, while the second supports the conventionality achieved in the visual sense, which does not necessarily suggest less creativity nor simplicity of form. In the area of Novi Sad, the most dominant feature is inhabitation that is integrated in each urban area. Multiple housing typology is architecturally the most widespread in the urban tissue, and the structures themselves, if created in exactly the same visual sense, would form an ambient sameness, a homogeneity that would condition the disappearance of the scenic sense and authenticity of the area. Urban design and three-dimensional planning contribute to orientation in space, develop the need of belonging amongst residents, the possibility of distinction and indicate an offer that improves the habits and lifestyle of the community. Novi Sad has for centuries nurtured historicity, culturality and scenic, invested in economic, social and commercial fund, but in terms of urbanity, it had various developmental stages and thus undermined the ideological continuity. The city centre maintained its magnetic pull, which is why, in the visual sense, it has remained as a single, harmonious whole. The oldest city core is thus generically declared as a place, and it is known that places are "targets or foci in which we experience premeditated events of our existence, but also the starting points from which we orient ourselves and conquer our environment." [2] Moving away from the city centre, we approach parts of the settlements that have, to a lesser or greater extent, sustained transformations during the period of the 20th and 21st century, and in which today a disharmony in terms of construction is apparent. In a morphological sense, dominant residential structures are visible, which represent the visual and environmental entities, separate objects that stand out in relation to the surrounding area, and in an adequate manner, with their form, size and color, become accents and representatives for the period in which they arise. The analysis found that precisely this kind of structure in the final expression, through dynamic surfaces, elements used on the facades, areal organization, colors and materials, affects the allure for the observers. For the residents of these buildings, the form of the object is less important, since for them it is a home, while for the observers and passersby, both

the orientation using these objects and their visualization, are more significant. The paper will evaluate those characteristics in the form of the objects which are dominant and characteristic in terms of final coating, and can be divided into several entities, by the applied principles and repeated visual characteristics.

2. EXPRESSIVENESS ACHIEVED BY GEOMETRIC MASSES AND THE COLOURISTIC IMPRESSION ON BUILDING FACADES

"Architecture in the long run requires creating and not adjustment" [1], due to what it is necessary to view the final expression of objects as an important factor in creating a recognizable image of the city. Forms in space interact with the viewer through their structural features, the applied elements in the geometrization of the facades, the materials used, colors, textures and the way in which the entire composition is achieved. Ambiances and spaces that have completely uniform elements through which communication occurs, do not urge interaction and experience becomes less dominant because "distraction is affected by intense and sudden events that occur in the field of attention" [3]. Therefore, it is necessary to have architectural structures varying in their height and size, shape of dimensions or structural features, in a selected style and applied elements of the facade, according to symmetry, harmony and articulation. The relationship between a human and the surrounding area has several levels of perception, but the interaction and reaction are the aim which can be reached by designed psychological and architectural techniques that activate all senses. The silhouette of the city is recognizable in relation to urban benchmarks and objects that are their primary identities. It is an accurate position that certain structures "have been so often used as reference points in our culture that not knowing them means not participating in that culture" [4], but it is also true that it is impossible to hope for the creation of every single object to become one of the most prominent. This syndrome would lead to chaos that becomes another extreme, which creates a space without identity, a place that lacks many urban and architectural qualities. A free standing building, due to its spatial structure has a greater ability to become dominant and attract the attention of observers, while a building in a row is a structure that is a part of the whole and must accompany the necessary makings of the surrounding and existing. "A whole takes on a unique and strong character" and "it must not look like it was made up of individual parts" [5] which is the reason that the objects in a row are more conditioned and less dominant.

In the final expression, the form of the building is something that is crucial for the observers, because without prior knowledge about the object, the viewer doesn't have to be aware of its function, content or its openness to public, nor have knowledge about the period of its construction, historicity and architectural heritage, in order for the object to be appealing and expressive to them in terms of the final coat. The attention of the observer is in this case directed to "individual creativity" [6] of the architects who created the form of the object which is in dialogue with the viewer, but is at the same time to a satisfactory extent in compliance with the environment. Shaping built structures through a facade is achieved with the use of geometric masses and the application of colors and materials in various interrelations. Form in itself sublimates volume and architectural masses, harmonic and stylistic relations, proportional diagrams

and morphological elements that dominate the structure. Depending on the needs, the situation, the geometry of dimensions, number of floors and urban conditions, the form of the object can be either regular or irregular. A regular form suggests balance, harmony and peace and a systematization that prevails in terms of proportion. However, even in this designing principle, there are also examples of objects that do not have these characteristics. The proper application of elements, their dynamic composition, the emphasis of vertical and horizontal lines of the structure can represent a geometric diversity and spatial flow of the facade. This way an interesting game of masses is obtained, as well as a good combination of relations of parts toward the whole, thus achieving the desired form of the object. "Shape is a much better tool for identification than colors, not only because it provides more types of qualitative differences, but also because the distinctive features of form tend to be more resistant to changes caused by the environment." [7] The expressiveness of objects through the form that has no clear stylistic features, represents the universal language of architecture, and as stated by Arnheim, it better endures transience and obsolescence guided by the taste of time (zeitgeist). Objects that have a form expressed through geometric masses are typical for their monolithic features, massiveness and spaciousness, which visually affects the domination of the physical structure of the city. These objects are more common in non-residential typology due to the fact that public facilities are characterized by massiveness that invites users to dialogue, and the surrounding areas and built structures represent an authentic scenery for their perception. On the other hand, Brolin believes that the relationship with objects in the surroundings can still be achieved even though the objects "differ in height, proportions and materials used," but as long as they have a similarity conditioned by "small details or embellishments" [8].

Through the analysis, it has been observed that the buildings which are dominated by forms emphasized with masses, are usually expressed through bright tones with modern materials, monochrome facade surfaces and color that is of secondary importance in relation to the shapes. The spaciousness can also be achieved in another way because "various construction materials, textures and colors do not change the geometric relations in space, but may change the perceptual relations... certain places may appear further away depending on the choice of materials, textures, colors" [9]. The best design principle is obtained exactly in this manner, by a combination of techniques, principles and materials used that highlight the structure, and the building is perceived differently each time, depending on the position of the observer.

Folmar believes that "a person who knows colors has not only more aware and more sensual, but also more meaningful experiences" because "every nuance of a certain color has its own vibration and a specific effect on people" [10]. The variety of colors in space, by a careful selection, can have a stimulating effect on the sense of sight of the observer, indicating the importance of expression through coloristic spectrum. The use of color on building facades requires a lot of thought and creativity, matching shades and materials which greatly change the tone of the chosen color. Each color of the spectrum, in the consciousness of observers, provokes an opinion or is associated with something previously seen and experienced, so particular tones, unsuitable for public spaces, can cause aggression or anxiety, while on the other hand, light tones may appear soothing, often uninteresting and completely drown the object in the surrounding space. Moderate combination of colors with the effect of natural or artificial light, has a positive reaction in the viewer and creates a constantly changing appearance of the built structure.

For non-residential typology, the use of color means accentuation, and often emphasis of the entrance area, vertical segments, inscriptions on the facades, various functional areas and tracts. The application of color throughout history had a symbolic function, and for its understanding, it is necessary to hold previous knowledge about the relationship between colors and natural forces and forms, circumstances, relationships and events, but the understanding of these characteristics is exceptionally important for the final experience of the object and the space in which it is located. Facilities and individual equipment elements represented through a dominant color became the identity of settlements or the primary symbolism of a city (for example: the white buildings with azure-blue accents on the island of Santorini). Colors are also associated with cultural, national and religious meanings, and thus, reading through colors takes on historical and social connotations.

3. EFFECT OF COLORS ON THE VISUAL EXPRESSION ON THE EXAMPLE OF MULTIPLE HOUSING FACILITIES IN NOVI SAD

The residential building typology has in the last decades, in the area of Novi Sad, taken precedence when observing the percentage of construction and the rapid development, while the expansion of the settlement influenced the quality and visualization of the newly designed structure. A large number of private investors financed the housing fund that has changed in many ways and offered a large selection on the market. "A man experiences the concept of home in a personal, emotional and biologically specific way, and therefore its orientation, identification and acceptance of the settlement is often directed exactly from that standpoint further to the rest of the surrounding areas." [11] This is a fact that some investors do not realise during the conceptual design and shaping of a building. Nowadays, one of the characteristic criteria of the formation is not the identification of the user with space but rather a marketing and financial profit. Objects built today are designed to exploit every square meter of space, to subordinate the functionality to profitability, and the appearance of the object remains of secondary importance. Parts of the city trending construction of multiple housing buildings in a row, in building blocks distinguished by marginal construction, are recognizable by the buildings in which the final coating is the product of internal organization. Facades are characterized by little morphological and architectural elements, with limited materials and specific structures. Sullivan's view that "form follows function" on the example of these objects is the most banal interpretations of such a great thought of the prominent architect and theoretician. Owning an apartment in this type of buildings, in areas of the city such as Grbavica and Nova Detelinara, no longer carries with it the connotation of belonging and elitism that once these old urban areas had.

On the other hand, housing construction has brought the emergence of large complexes, lamellae and freestanding buildings of atypical dimensions that dominate their closer surroundings. This group constitutes a second conceptual whole, and is characteristic along the boulevards or major city roads. One of the main features of such complexes is a recognizable final form as an expression that points to the investor and represents his mark in the urban tissue. In terms of geometric masses and facade colors, a discernible division has also been observed, as follows:

- Buildings in which light colors (usually white, light gray and beige), modern materials, lots of glass, metal, and at first sight unrecognizable expression for housing typology were used.
- Buildings in which emphasized fenestration is the dominant element, with light colors and subdued materials on the facades.
- Objects with a recognizable form of residential buildings, with facades on which different materials and colors were used.

The first group is specific in being a great accomplishment for investors, which is why a lot has been invested in them in a visual sense, in order to become identities in space and represent an object that is an expression of prestige and power. Representatives of this group may be seen on the Oslobođenja Boulevard - "Aleksandar Boulevard Center" (Figure 2) or in the Narodnog Fronta Street - "Park City" (Figure 1). The two examples mentioned are important objects of multifamily residential-business typology, arising in the 21st century, with modern expression and massive dimensions compared to the immediate surroundings. The morphology, ratios and shape of these buildings were created as a product of thoughtful actions of the designers and contain "certain tectonic or harmonic relations." [12] The color that was used is only an element that completes the overall expression without the need for it to be used as an invitation for interaction. Light colors (white), which dominate the facades aim to display the objects in their full glory, where the play of shadows and the use of glossy and matte materials are the means to achieve the impression of size. In these objects, a horizontality which, in perceptual sense, influences the size is emphasized in order to make the object look much more dominant. Adequate use of color and a geometrization of the facade are indicators that architectural expression can be simple in terms of the elements used, but in the global perception of the object, this is an action by which recognition is obtained.



Figure 1. - "The Park City" along the Narodnog Fronta Street and
Figure 2. - "The Aleksandar Boulevard Center" along the Oslobođenja Boulevard

The second group is more common in Novi Sad, because it involves the construction of buildings for multiple housing, which in relation to the applied materials implies slightly lower investment. It has been noted that with these objects the front surface of the facade in which fenestration dominates as the most impressive element is in the forefront, rather than glass, reflective surfaces, transparency and translucency. The form of the buildings is simple, with calm lines, its harmonious, with emphasized horizontals that define the

floors. In terms of color, designers have mostly opted for white color and light shades, that contribute to the overall expression. Regarding the buildings that have a reduced pace and flow on their facades, the selected concept is not the segmentation in relation to the colors or materials, but rather white color was used that creates even more pressure on the observers in terms of size. These objects-complexes are visually larger and morphologically very dominant from the ground level. As some of the representatives of this group in Novi Sad, the following residential-business objects stand out: "Erker Engineering" at Cara Dušana Street (Figure 3) as well as the complex "Lagoon" on the Subotički Boulevard (Figure 4). Designers are rarely opting for the previously described design concept because its final expression does not show the characteristics of the investors, and as has already been pointed out, this approach is essential and greatly affects the form of the object.



*Figure 3. - Multifamily-residential building in Cara Dušana Street and
Figure 4. - "The Lagoon" along the Subotički Boulevard*

The third group consists of the most common examples of dominant residential-business complexes in the city. A characteristic of these buildings is the large number of residential units (same as buildings in the second group), the organization of several lamellae into a complex and the number of floors, which is approximately 4-6 residential storeys. These complexes are being built in stages, but the entire space is conceptually devised, so the shaping of individual buildings is harmonized and together they form a single whole. On the facades a residential typology is recognized through a large number of windows, loggias and terraces, French balconies, but the separate division and segmentation on the facades are also achieved through the use of colors and materials. These objects are representatives of a clear and distinctive architecture of individual city investors, due to the use of recognizable materials, colors, lighting effects and inscriptions as protective elements. "The relationship existing between a specific local situation and the buildings located in that place," [13] or locus, as called by Rosi, in many cases has not been met and adequately shaped. The streets in which these complexes are formed have too narrow cross sections for architectural massifs of such dimensions and the urban tissue itself, in which the objects are created, is built in a different stylistic spirit. Colours applied to the facades are not harmonized with the surrounding structures, but conducted analyzes initiated an interesting question, which points to the problem of unrecognizability that would arise if all objects were in similar

coloristic tones and had similar morphological characteristics. Homogeneity is an equally problematic approach to design as is visual chaos in the modern city, making careful deliberation and planning a necessity. As current examples of the mentioned group, the residential-business complex "Garden" in the Rumenačka Street (Figure 6) and a residential-business complex on the Šumadijska Street (Figure 5) stand out. Characteristic for both of these multi-family building rows, are white, green and brown colors on facades, in harmonious relations, with accents in the form of angular towers, accented bay windows and simple fenestration.



*Figure 5. - Multifamily-residential building in Šumadijska Street and
Figure 6. - "The Garden" complex in Rumenačka Street*

4. CONCLUSION

This paper analyzed some of the examples that can be found in Novi Sad, structures that dominate due to their size and represent residential-business complexes with a distinctive final design. The study showed that the selection of the design concept is influenced the most by the financial value and the funding of the investor, the location of the complex, the frequency of the street where the object is located, adjacent structures and the diversity of offers in the immediate environment, as well as the potential of the complex to become the identity of the area. A problem that may occur with this kind of urban principle is the question of the appropriateness of forming "beehive" objects in which there is a large number of residential units, but the offer of non-residential contents on the site is scarce due to the lack of space. In addition to these examples divided into three groups, "it is noticeable that the very concept of massive buildings is constructed also in central parts of the city, but there is a question of ecological and environmental conditions in these urban blocks, since the cross section of assembly and access streets does not support the construction of that type of residential buildings which do not contribute to a pleasant and healthy atmosphere." [11]

In terms of color and materials used in the analyzed cases, a dominance of white color and light shades was observed, and stronger tones are used only to emphasize smaller repetitive elements or structural entities in shaping (bay windows, parapets). For buildings where glass and metal were used, expression through color doesn't exist, because only white, gray and black stand out as applied colors. In the analysis it has been noted that the use of colors and materials varying in structure, texture, gloss, can be just as attractive as shaping with masses, and thus, all the above listed design principles created objects of recognition in Novi Sad. Identity in space occurs by being

distinguishable in the environment, and thus the multi-family residential-business buildings, that are an urban feature of the past decade, became determinants of urban areas in which they were created, and as a design principle, are still being implemented in many parts of the city.

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ПРИМЕНА БОЈЕ НА ФАСАДАМА У ФУНКЦИЈИ СТВАРАЊА ВИЗУЕЛНИХ РЕПЕРА - СТУДИЈА СЛУЧАЈА - СТАМБЕНИ ОБЈЕКТИ У НОВОМ САДУ -

Резиме: Одабиром адекватног архитектонског концепта у пројектантској фази, могуће је створити карактеристичан градски репер који се издваја у односу на

непосредно окружење. Бројни параметри и принципи пројектовања примећују се приликом анализе морфологије, геометријске композиције и завршног изражаја на фасадама објеката на територији Новог Сада. Како је стамбена типологија најдоминантнија и имплементирана у свим деловима града, предмет истраживања у раду су стамбени објекти који су визуелно доминантни у ужом и ширем окружењу. У раду ће бити анализирани објекти из стамбеног фонда насталог крајем XX и почетком XXI века, односно у постсоцијалистичком периоду развоја града, који су изграђени као масивнији габарити, мањи стамбени комплекси или ламеле и који утичу на формирање препознатљиве слике града, те у колективној свести друштвене заједнице представљају идентитете појединачних делова насеља. Критеријуми вредновања засниваће се на перцепцији објеката код којих су наглашене геометријске масе, облици и композиција склопа последица доминантног деловања боје као елемента завршног архитектонског изражаја. Осим архитектонских, вредноваће се и урбанистички утицаји локације, околних објеката, јавних површина и других релевантних фактора који утичу на доминантност сагледавања форме објекта и његове фасаде.

Кључне речи: *стамбени објекат, перцепција, градски репер, Нови Сад*