

Review paper

VISUAL ELEMENTS OF ARCHITECTURAL FORM

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Abstract

Visual elements in the design of architectural forms are crucial in shaping space and creating the final architectural composition. The shape and proportion of the object determine how the architectural form will fit into the environment and how users will perceive the space. The colors and materials used in construction can significantly influence the visual dynamics, creating contrasts or harmony within the space. Lighting and the shadows that are created have an important role in highlighting details, creating visual depth and atmosphere within the object. Good architectural design not only meets technical requirements but also carefully balances these elements to create a space that satisfies aesthetic needs. The aim of this paper is to explore the impact of each of these elements on the form of the built object. By examining these elements, the paper will provide a deeper understanding of their interrelationship and how they all contribute to the final appearance and functionality of the object.

Key words: *architectural form, design, visual elements, architectural composition, shape*

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1. INTRODUCTION

Architectural form is an important element in the analysis of an architectural object and is often the subject of various theoretical and practical researches. Even in the ancient period, Vitruvius in his book *Ten Books on Architecture* points out that architecture rests on the principles of order (táxis), arrangement (diathesis), eurythmy, symmetry, propriety and distribution [1]. These principles do not only apply to the construction of the building, but also to the way in which the shape of the building reflects the harmony of the elements, thus creating a recognizable visual expression. Vitruvius' principles still have significant theoretical value today because they show that the relationship between the form and the meaning of an object has been present since the earliest thinking about architecture. As one of the key elements of the visual experience of architecture, form never acts independently. Rob Krierer [2] says that the three elements of architecture are function, form and construction and that all three have equal significance in designing. However, through the understanding of the form, it is possible to see the way in which the object communicates with the space and the observer. The statement that "shaping is nothing but the creation of tangible and visible forms of a building"[3] speaks of form as the visual language of an architectural idea. Designing an object can be understood as the process of transforming abstract spatial ideas into concrete forms. Through shaping the form, architecture not only becomes accessible to the observer, but also invites him to a deeper experience and understanding of the object. According to Ching [4], form is "the configuration of mass and space, which results from the organization of lines, surfaces and volumes in three-dimensional space", and as such represents the basis for further perception of the built object. The visual elements of the architectural form represent the basic components of the architectural expression through which communication between the space and the observer is achieved.

This paper focuses on the analysis of the visual elements of architectural form, exploring how they contribute to shaping the building's appearance, identity, and the impression it leaves on observers. Special emphasis is placed on how the form communicates with its environment and users, as well as how it contributes to the recognizability of the architectural work.

2. VISUAL ELEMENTS IN THE DESIGN OF ARCHITECTURAL FORM

Architectural form represents the visible shape of a building, resulting from the relationship between space, structure, and function, while also taking into account the context in which the building is created. [4]. Most often, we describe the form of an object as either regular or irregular [2]. However, for a deeper analysis, it is necessary to examine each of the visual elements of the applied form more specifically. Visual elements are crucial for understanding the designed architecture, as they shape the way users perceive the space, its structure, atmosphere, and aesthetic qualities. The basic visual elements of architectural form include [5]: **shape, size, color, light, and texture** (Figure 1). Each of these elements plays a specific role in creating the general impression of the object and significantly influences the way the space communicates with its environment and users. Bacon [6] states that these elements relate not only to the exterior appearance and perception of the object but also apply to the interior. Additionally, he mentions **shadow**

along with light, which will also be taken into account during the analysis of each individual element.

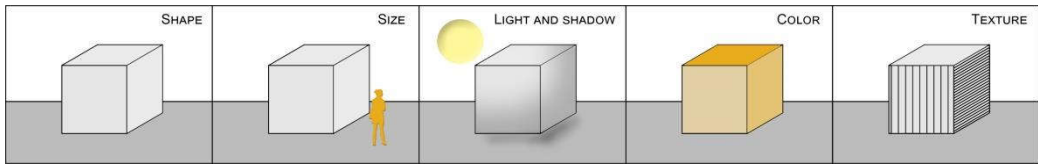


Figure 1. Visual elements of Architectural form

Shape represents the fundamental visual element through which architectural form is identified and recognized in space [4]. In the process of interpreting the shape of a building, we often first identify basic geometric forms such as the circle, rectangle, or triangle. These forms serve as the foundation of architectural composition, but their transformation through bending, multiplication, rotation, or interpenetration leads to the creation of more complex, intricate shapes. The interpretation of more complex architecturally shaped parts or entire objects used in the creation of form requires knowledge of geometric surfaces and their classification in order to recognize the specific shape of a building. In some more complex forms, segments or sections of surfaces are used, and through multiplication and merging, they create a complex spatial structure [7]. In contemporary architecture, especially with the development of digital tools and parametric design, fluid, organically shaped forms have emerged, which, through the analysis of form, can be classified as abstract forms.

When analyzing shape, it is important to recognize its symbolic aspect. In the architecture of memorials, museums or certain public buildings, the form often carries a deeper meaning, the architect then uses a metaphor, or awakens an emotion in us by creating a certain form. The shape is then not only an aesthetic choice, but a means of communication and transmission of the message that the object presents to the observers.

Size is one of the fundamental visual elements of architectural form and refers to the dimensioning of an object. By defining size, it is possible to emphasize important elements both of the object itself and by creating landmarks in relation to other objects. Therefore, the perception of size should always be considered in relation to other forms, space, and above all, the observer. It is also important to highlight that when we talk about size, we are not always referring to massiveness, but rather to the emphasis of certain parts by defining smaller or larger sections, or the entire object. For example, if we want to emphasize how magnificent or powerful something is, we increase the dimension of the element. However, we also talk about size when we want to highlight the intimacy of a place by creating a more harmonious, smaller element. Size is closely related to scale [5], because it only becomes legible in relation to the person or the environment.

Color is the attribute that most clearly separates a form from its surroundings [4]. The use of different colors allows for the emphasis of certain parts of an object, creating a dominant element in space, but also connecting it to the context in which it is located. The choice of colors must be carefully considered in order to achieve harmony and balance. Color is closely related to light and the texture of materials, and therefore significantly affects the perception of the shape and atmosphere of a space. When we talk about color, we do not always think of bright colors such as red and blue, but we can also talk about the value of white and black and their shades. The choice of colors has a strong psychological effect because it affects the mood of the user or observer.

Light. "Architecture is a knowledgeable, correct, and magnificent play of forms assembled in light. Our eyes are made to see forms in light; shadows and bright spots reveal forms" [8]. When we talk about light as a visual element, we must observe two directions. Natural light, the position of the object in relation to the sun, the shading in relation to neighboring objects, the creation of a natural shadow from the object itself and the surroundings contribute to the experience and affect the appearance of the object itself. Through the play of light and shadow, the volumes and textures of the material are emphasized. Natural light changes the appearance of the architecture during the day, creating a dynamic ambience. Another thing is the application of artificial lighting, which can be used to emphasize some parts of the object, it gives the architects additional control, which enables them to emphasize certain elements of the form. Light can affect the emotional response of the user, creating a feeling of warmth, drama or calmness, that's why light is one of the important visual elements of the form that shapes the entire visual identity of the space.

Texture represents the surface structure of the material from which the object is made. The texture directly depends on the selection of the material used to build the object or the finishing coating used to cover the element itself. "The texture of an object is perceived by sight and touch, it can be rough or smooth, matte or shiny, etc. The texture affects the way light is reflected and the perception of the object's color, the experience of objects that have the same color but a different texture is completely different." [9]. Through different textures, the object gets a specific visual identity, which significantly influences the way we observe and experience it in space.

1.1 Interaction of visual elements in the development of the final design

When observing all these elements, we can notice that they never act independently and that only through the combination of these elements does the designed form **achieve** beauty and harmony. In *The Dynamics of Architectural Form*, Arheim [3] states: "Just as no machine, orchestra, or sports team can perform without the integrated cooperation of all its parts, neither can a work of art or architecture fulfill its function and convey its message if it does not represent an organized structure." According to Ching [4], all these elements contribute to achieving a harmonious form, which he presents through the following principles: axis, symmetry, hierarchy, rhythm, datum, and transformation. Through these principles, the architect shapes the form according to their vision and the functional requirements of the space.

Each of the visual elements presented in the previous chapter plays a crucial role in creating composition and balance within a space. A well-designed combination of shape and size can establish a harmonious relationship between an object and its environment, while the interplay of light and shadow, along with the careful selection of materials, colors, and textures, contributes to the form's dynamism. These elements are always used in interaction, achieving a balance between the aesthetic values and the functionality of the space. The harmonious integration of these factors, like pieces of a puzzle, contributes to the overall perception of the object, making it visually appealing to the observer.

2.1. Analysis of Visual Elements on the Selected Object

Since we will not now deal with the influence of function on form, or the construction of the element itself, but only with the relationship of the elements used to the applied form, the most famous work of Bogdan Bogdanović was chosen for the analysis. The Stone Flower monument (Figure 2), built in 1966 in Jasenovac, is dedicated to the victims who died in the concentration camp located at the same location. Despite the time in which it was built, the analyzed monument has an attractive design and attracts attention even today [10].

The stone flower represents one of the most famous features of Yugoslav architecture, and it is recognizable precisely by its form. Based on the previous chapter, we will analyze each of the visual elements.



Figure 2. Jasenovac monument, source: <https://www.spomenikdatabase>

The shape of the analyzed monumental object is recognizable by its shape imitating a flower (Figure 2). In this case, the shape came from the symbolic idea of the architect, where the flower is shown as a new life, but also as a memory of suffering. The shape of the flower is achieved by the formation of 5 petals, which are placed radially around the central pillar of a cylindrical shape. The petals have a more complex geometric shape, each petal is shaped like a curved surface. By transforming and refining the surface, balance was created in the design and simplicity in proportion.

If we look at the monument itself, we will see that **its size** represents a clear central landmark in relation to the rest of the area, a symmetrical structure with a dominant flower attracts attention from whichever direction you look at it. With a height of 24m and a length of 36m, it stands out in relation to the natural environment in which it is located [11] (Figure 3). The plain that surrounds it and the hill on which it is located contribute to its magnificence. With the appropriate size, a balance was achieved in relation to the environment. In the picture shown, you can see how magnificent it is in relation to the observer. With this kind of presentation, its greatness stands out even more (Figure 4).

The absence of color is not accidental, but represents a choice that strongly contributes to the overall expression of the work through the absence of decorativeness. On some of the architect's sketches, attempts at colored shading can be seen, but the building is made of concrete, which is a characteristic material for memorials from that period of construction. Color was avoided in this case, so as not to demean the seriousness of the subject of suffering. The gray shade of concrete additionally enhances the atmosphere of sadness, the neutral, cold surface of the material directs the viewer's attention to the form itself, the play of light and shadow and the message the object sends.



Figure 3 Showing the size of the object in relation to the height of people, source: <https://www.spomenikdatabase>



Figure 4 View of the object in relation to the natural context in which it is located, source: <https://www.jusp-jasenovac.hr/>

Some of B. Bogdanovic's first sketches show that he thought deeply about the position of the planned building in relation to **sunlight**, (Figure 5a). The place where the monument was placed was chosen thoughtfully, precisely through the analysis of the shadow and reflection that will be created in the water that is next to it. Also, the shadows created by the flower itself and the openings in the petals contribute to the impression that the flower is rooted in the ground because a dark shadow is created by the upper element. The openings on the petals allow light to penetrate into the interior of the flower, further highlighting its shape.

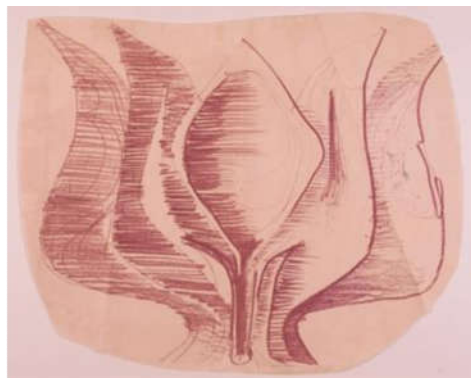
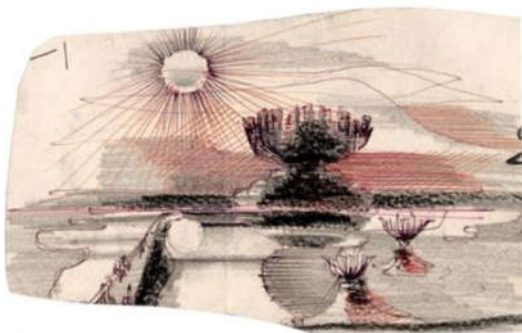


Figure 5a, 5b Bogdan Bogdanovic's sketches, source: <https://www.jusp-jasenovac.hr/>

Even during the planning of the building, horizontal hatching is clearly visible on the sketches (Figure 5b), which was later implemented. **The texture** was achieved by choosing concrete as the material, and the flower column itself is additionally emphasized with a relief

that imitates the stem of the flower. Visually, its rough surface reflects light in an irregular manner, creating a play of shadows that further emphasizes the drama of the form.

3. VISUAL ELEMENTS IN THE FUNCTION OF CREATING ARCHITECTURAL IDENTITY

The form of the monument “Stone Flower” cannot be viewed in isolation from the broader architectural and cultural context in which it was created. “Memorial architecture played an important role in establishing the newly created Yugoslav identity” [12]. In this sense, the analyzed monument is not an isolated phenomenon, but rather part of a broader visual system that characterizes the architectural production of that period.

Specific visual elements such as geometric abstract shapes, dramatic contrasts of light and shadow, the absence of color, emphasized sizes, and expressive surfaces of rough texture were not exclusively formal choices of individual authors. In fact, they became characteristic elements of the language that shaped the visual identity of the space of socialist Yugoslavia. This aesthetics of brutalism and late modernism is recognizable not only in monuments, but also in cultural centers, public institutions, schools, residential architecture, and even in the design of urban furniture.

What connects the buildings of that period is the rejection of historical stylization in favor of a new modernist paradigm in which form, through shape, size, material, texture, and light, become the main elements of the complete architectural expression. It is precisely through the repetition and variation of these visual elements that a recognizable visual identity of the state was built, which also had an ideological dimension — it symbolized collectivity, progress, resistance, and memory.

In this broader context, the “Stone Flower” can be interpreted as an archetype of the entire era in which it was built. Its brutalist aesthetic is not only a stylistic designation, but a visual medium through which the values of resistance, suffering, but also unity and permanence are articulated.

4. CONCLUSION

Analyzing the visual elements on the example of the Stone Flower monument clearly shows how carefully and thoughtfully the architect uses shape, size, color, light, shadow and texture to create a strong spatial experience and emotional reaction of the viewer. The form in this case is not only an aesthetic choice, but carries a deep symbolic meaning. Through the careful integration of all visual elements, Bogdanović managed to shape an architectural work that becomes a powerful symbol of collective memory and remembrance of the victims of suffering. This analysis confirms that the architectural form cannot be viewed separately from the elements that build it, but as a result of their complex interrelationship. That is why it is important to consider visual elements in the earliest stages of design, already at the level of the first sketches, as we had the opportunity to see through the analysis of this work. Today, there are also 3D tools with which we can experiment and try several versions through modeling before the final selection of the form, which facilitates the selection and creation of the final form of an object. Through understanding the relationship of the analyzed elements, the architect can direct the further development of

the form towards achieving the desired expression and atmosphere. Visual elements are not only a means of design, but also a tool for conveying ideas and emotions that the object should evoke. Their thoughtful use enables the establishment of a connection between the space, the user and the wider context. Only through a comprehensive analysis and careful balancing of these elements is it possible to create architecture that leaves a lasting and powerful impression.

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