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THE PHENOMENON OF ATMOSPHERE IN ARCHITECTURE

Abstract

This paper explores the phenomenon of atmosphere in architecture, highlighting its increasing relevance in contemporary theory and practice. By analyzing various perspectives, it investigates how atmosphere is experienced and created in architectural space. The research aims to deepen the understanding of this phenomenon through theoretical analyses and practical approaches, with the intention of enhancing the methodology of architectural design. The combination of theoretical and qualitative methods allows for a diverse examination of atmosphere as a key aspect in the construction of architectural quality, contributing to both the theoretical and practical fields of architecture. These studies emphasize the significance of atmosphere as an integral part of architectural experience, offering new perspectives in the study and design of spaces.

Keywords: spatial-emotional phenomenon, sensory experience, atmosphere generators

ФЕНОМЕН АТМОСФЕРЕ У АРХИТЕКТУРИ

Сажетак

Овај рад истражује феномен атмосфере у архитектури, истичући његову све већу актуелност у савременој теорији и пракси. Анализирајући различите перспективе, истражује се како се атмосфера доживљава и ствара у архитектонском простору. Циљ истраживања је дубље разумијевање овог феномена кроз теоријске анализе и практичне приступе, с намјером унапријеђења методологије архитектонског пројектовања. Комбинација теоријских и квалитативних метода омогућава разноврсно сагледавање атмосфере као кључног аспекта у грађењу квалитета архитектуре, пружајући допринос како теоријском, тако и практичном пољу архитектуре. Ова истраживања наглашавају значај атмосфере као интегралног дијела архитектонског искуства, остварајући нове перспективе у проучавању и пројектовању простора.

Кључне ријечи: просторно-емоционална појава, чулно искуство, генератори атмосфере

1. INTRODUCTION

This study deals with the concept and phenomenon of atmosphere in architecture. It examines the characteristics of atmosphere in architecture, which is realized in the encounter between subjective experience and the immediate reality of architectural space. Atmosphere as a spatial phenomenon in architecture has become prominent in the last 30 years. The evidence of the current interest and pursuit of understanding and defining the phenomenon of atmosphere is visible both in the practices of contemporary architects and artists and in the growing literature addressing this issue, which constitutes the motivation for this research aimed at better understanding this current topic. As a result of the conference entitled "Atmospheres, Architecture, and Urban Space: New Conceptions of Management and the Social," held in Copenhagen in 2011, the book "Architectural Atmospheres: On the Experience and Politics of Architecture" [1] was published. The Dutch architecture journal OASE dedicated issue 91 in 2013 to this topic, titled "Building Atmosphere." [2]

In this study, the exploration of the phenomenon of atmosphere in architecture primarily relies on the contemporary research of three authors: the German philosopher Gernot Böhme, the architectural theorist and lecturer Juhani Pallasmaa, and the Swiss architect Peter Zumthor. Philosopher Böhme addresses the topic of atmosphere in a broader cultural sense, and of significant importance is his systematic translation of the concept of atmosphere into architectural discourse. The two architects who predominantly engage with the phenomenon of atmosphere in architecture, Pallasmaa and Zumthor, approach this issue from different research positions. Pallasmaa remains within theoretical frameworks, enhancing his long-standing phenomenological approach to architectural research with this concept. Zumthor, an architect-builder, primarily approaches the phenomenon of atmosphere through practice and through the analysis of his design approaches. However, it is evident that all three authors primarily utilize the concept of atmosphere to emphasize the general emotional impression associated with the entire building or some of its fragments.

The main goal of the research is to define the phenomenon of atmosphere in architecture as a spatial-emotional phenomenon through the analysis of key theoretical premises, as well as to consider how atmosphere is constructed in architectural practice. Additionally, the aim of the study is to point out possibilities for improving the methodology of architectural design in the context of constructing the phenomenon of atmosphere as a quality of architecture, as defined by Zumthor.

The research methodology in this study relies on theoretical and qualitative research. In the first part, the research is primarily positioned in the field of architectural theory. To explore the phenomenon of atmosphere in architecture, an overview is provided of the understanding of the atmosphere phenomenon, as a spatial-emotional phenomenon according to the interpretations of Gernot Böhme and Juhani Pallasmaa. In this way, a broader basis for interpreting concepts related to atmosphere is established, aiming to create a clearer picture for further examination of atmosphere generators in architecture. The second part of the study presents qualitative research, which is based on the analysis of examples of constructing the phenomenon of atmosphere in the work of Peter Zumthor, based on his design principles. In the concluding part of the study, a final discussion is formed based on the research findings, aiming to indicate the usefulness of establishing possibilities of principles and methods of constructing atmosphere, in order to expand the field of design strategies.

The results of the study relate to theoretical knowledge about the phenomenon of atmosphere in architecture and the possibility of practical application of knowledge in the field of architectural education and in the design practice. The methodological contribution pertains to expanding the possibilities of the methodology of studying architectural creation and design processes through the analysis of atmosphere as a spatial quality. The research represents a contribution to the methodology of architectural design by pointing out the importance of considering opinions and conceptualizations of atmosphere in architecture.

2. THEORETICAL FRAMEWORK

The primary intention of this section is to theoretically elucidate the phenomenon of atmosphere in architecture, its significance, and its role in shaping the experience of architecture and its qualities. Christian Borch, a professor of political sociology with an interest in architecture, notes: "One of the most significant recent trends is a turn towards (or perhaps a return to) atmospheric qualities in debates on architecture and urban space, as well as in practical architectural work." [3] The architectural theorist Mark Wigley, as early as 1998, in his essay "The Architecture of Atmosphere," [4] observed a lack of attention devoted to the phenomenon of atmosphere in architectural discourse. According to his observations, the concept of atmosphere is associated with something ephemeral

and personal, something that is difficult to define and analyze, and even more challenging to create. Yet, he also emphasizes that it constitutes the essence of architecture.

A key figure in the field of atmosphere theory is the philosopher Gernot Böhme. In his framework, the theory of atmosphere becomes an aesthetic theory applicable in various domains, as discussed in the book "The Aesthetics of Atmospheres." [5] According to his theory, the phenomenon of atmosphere in architecture connects objective factors and spatial constellations with subjective bodily sensations and experiences of that space. In his view, atmospheres are quasi-objective, in the sense that we can be enveloped by an atmosphere, but they do not exist without the subject experiencing the atmosphere. Therefore, Böhme considers the phenomenon of atmosphere as a tuned space, or a space with a particular mood. Simply put, the phenomenon of atmosphere is something that is simultaneously spatial and emotional. He emphasizes two basic approaches to the theory of atmosphere: one can approach the atmosphere not only from the perspective of the aesthetics of perception but also from the perspective of the production of aesthetics. By providing comprehensive interpretations of atmosphere as a phenomenon in architecture, this philosopher has opened up possibilities for implementing this phenomenon in architectural practice, translating it from philosophical to architectural discourse. Of particular importance in this regard is his book "Atmospheric Architectures, The Aesthetics of Felt Spaces." [6]

The first to establish a relationship between the phenomenon of atmosphere and theories of perception was the German phenomenologist Herman Schmitz. In his theory, perception represents an affective and connecting participation, and atmosphere is interpreted as spatial carriers of mood and, as such, possesses motivational and emotional power. [6] Following in his footsteps, the philosopher Gernot Böhme, as mentioned, revitalizes the phenomenon of atmosphere in the context of architecture. Böhme, as stated in the introduction of the discussion, defines atmosphere as a space that contains mood and emotion because, according to his view, emotions are not only within us but can also be external, something that envelops us. From this perspective, space can be imbued with a certain emotion, and that is precisely how he defines the spatial character of atmosphere. Referring to Schmitz, Böhme calls the phenomenon of atmosphere an entity, a quasi-object; in other words, he sees that the phenomenon of atmosphere in architecture can be interpreted as a personal and emotional impression of space, but one that is based on and connected to the objective properties of space, such as composition, materials, spatial dimensions, material connection with the place or other objects, rhythms, lighting, etc. Thus, the concept of atmosphere is defined as a total experience, although it is determined by heterogeneous constitutive elements and many aspects. The introduction of the term atmosphere, as Böhme concludes, leads to a redefinition of the art of architecture in terms of creating space as bodily presence. [7]

Finnish architect and architectural theorist Pallasmaa has made a significant contribution to the theory and practice of architecture grounded in phenomenology. In his essay "Space, Place and Atmosphere: Peripheral Perception in Existential Experience," Pallasmaa defines the phenomenon of atmosphere as a spatial quality that provides and emphasizes sensory experience. [8] The experience of atmosphere as a quality of architecture, according to this definition, is an embodied experience. Pallasmaa builds his theory of atmosphere on two essential pillars. The first relates to emotional experience, which precedes intellectual understanding, stating: "We are mentally and emotionally affected by works of architecture and art before we understand them, or, in fact, we usually do not understand them at all." [9] The second pillar is based on the idea that our pre-intellectual encounter with architecture is directly linked to multisensory experience. Thus, Pallasmaa associates the intuitive and emotional realm with our subconscious, which is based on multisensory experience as a kind of pre-intellectual cognition.

Pallasmaa explains these characteristics by stating that humans are capable of instantly sensing the atmosphere of a space before analyzing details and intellectually mastering its elements, much like they are able to form a clear image, feeling, and retain a vivid memory of a particular atmosphere: "The judgment of environmental character is a complex fusion of countless factors that are immediately and synthetically grasped as an overall atmosphere, feeling, mood, or ambience." [8] This interpretation of the phenomenon of atmosphere in architecture is closely linked and grounded in the philosophical interpretation of perception by the renowned French phenomenologist Maurice Merleau-Ponty, as he elaborated in his famous work "Phenomenologie de la perception" [10] whose research serves as a basis for phenomenological investigations in architecture and the arts.

Pallasmaa utilizes the concept of atmosphere, among other things, as a critique of the dominant visual aestheticization or "architecture of the eye," introducing the notion of the embodied image: "But I think the notion of atmospheres is in balance with my understanding of the body image, or the embodied image, in its comprehensive, sudden grasping of the emotional and existential essence

of a situation, whether social or architectural." [11] His critique is directed towards the contemporary state of dominant visual culture and modern life, which has become a world of images and simulacra. In response, his theory emphasizes the qualitative capacity of architectural multisensory and layered communication, which, predominantly focused on the visual, is neglected, resulting in, according to him, impoverishment of our existential existence in the world. [12]

Furthermore, he sees the essence of architectural experience in the character of verbs rather than nouns or adjectives, as architecture always implies and invites activity, which he connects with the term "lived image." Both terms, which overlap with each other, he developed in his earlier works, using them further as a metaphor to thematize the way architecture is experienced and as key terms to describe atmosphere as an emotional and multisensory experience. [13]

Since his seminal book "The Eyes of the Skin: Architecture and the Senses," [13] in which we recognize the influence of Merleau-Ponty and his theory of phenomenological perception, Pallasma suggests that tactility is the primary sense and that all senses are derived from it. As implied by the title itself, the sense of touch is prioritized, while all other senses, as Pallasma wishes to illustrate, are its unique extensions. Drawing on Merleau-Ponty's theory that our encounter with the world is through a thin membrane of skin and that all other senses are differentiations of this membrane, Pallasma insists on the concept of tactility not just as touch in the literal sense but in an existential sense, as a holistic experience emerging from all sensory modalities, as a haptic sense of being in a particular place at a particular moment, as the reality of existence. [14]

In terms of interwovenness and interdependence of subject and object, Pallasma states: "We behold, touch, listen and measure the world with our entire bodily existence, and the experiential world becomes organized and articulated around the center of the body. Our domicile is the refuge of our body, memory, and identity. We are in constant dialogue and interaction with the environment, to the degree that it is impossible to detach the image of the Self from its spatial and situational existence" [12:64]. Therefore, the question of atmosphere, according to him, is a question of existential spatial experience, as a qualitative value of architecture that fully engages human sensibility.

2.1. BUILDING ATMOSPHERE

In the previous chapter, an overview was provided of the understanding of the concept of atmosphere as a phenomenon in architecture. This laid a broader foundation for interpreting concepts related to atmosphere, aiming to create a clearer picture of the connection between the phenomenon of atmosphere and architecture. In this chapter, we will review the generators of atmosphere creation according to Böhme's interpretation, who systematically defined groups of generators as well as the characteristics of atmospheres. It starts from the fact that we create and determine the atmosphere just as it determines us. [6:119]. He elaborates on the space of atmosphere in architecture as a space of conscious physical presence that is linked to the sensibility of the user, or the user's personal experience. The relationship between conscious physical space and conscious physical sensibility is defined by the elements of atmosphere, or atmosphere generators [7:92-93].

The starting point is the perspective that atmosphere is designed and generated during the design phase in a way that establishes specific material conditions that will generate a particular atmosphere [6:161], which will be realized/experienced in the encounter between users and physical presence. Thus, behind the experiential quality of the architectural physical phenomenon lies intentionality, which, through generative forces, achieves the phenomenon of atmosphere. The emergence of experiencing atmosphere raises questions of architectural intention and conception, and in that sense, the architect's awareness of the possibilities of producing atmospheres is of great importance [14:95]. In other words, a specific atmosphere of space can be deliberately produced by certain elements of space, which can be defined as atmosphere generators.

In his theory, Böhme divided atmosphere generators in architecture into two main categories: material and immaterial generators. Material generators are tangible and relate to form, dimensions, spatial relationships, materials, including surrounding objects such as water and fire. On the other hand, immaterial generators are intangible and relate to light, color, sound, smell, and temperature, which alter the character of space with their characteristics. [6:3, 21, 22, 125]

In the process of design, architects should consider those atmosphere generators intentionally producing the desired atmosphere characteristics, starting from the integrity or the character of the atmosphere they aim to achieve in the space. In this sense, Böhme made a division of atmosphere characteristics based on the dominant atmosphere generator in the space, namely:

- The impression of movement, in a broader sense, is represented by the spatial structures of architectural form. These generators are perceived as suggestions of movement, motion, while in a broader context, such as the impact on the space of bodily presence, they can also be experienced as confinement/expansiveness, proximity/distance, volume, or load.
- Synesthesia as a characteristic refers to sensory qualities that can be experienced in the same way or can evoke the same mood by simultaneously activating different types of senses. When selecting sensory qualities of atmosphere generators that refer to synesthesia and establishing their order in the process of building atmosphere, the question arises: what mood does the architect want to create in a particular space, and precisely this specific type of mood represents one of the goals of building atmosphere.
- Social characteristics integrate suggestions of movement with synesthetic characteristics, often including conventional elements of semiotic nature. In other words, the third group of generators influences the first and second groups, that is, the experience of characteristics implying the mode of movement in space as well as the synesthetic properties of space. [6:91-93]

Depending on the character of the atmosphere to be generated, according to Böhme's interpretation, specific atmosphere generators are taken into account to achieve that character. Before the actual process of building atmosphere, it is important to identify the generators that imbue the space with the appropriate atmospheric properties.

3. ARCHITECTURAL PRACTICE: BUILDING ATMOSPHERE

In this section, we will examine the architectural practice of Swiss architect Peter Zumthor, who explores the phenomenon of atmosphere from design perspectives and through the analysis of his projects and approaches. In his book "Atmospheres: Architectural Environments. Surrounding Objects", Zumthor directly links the question of atmosphere with the quality of architecture, considering it as an aesthetic category. [15] As he explains, it is the initial and immediate experience of space, a phenomenon that emotionally affects humans, where emotional sensitivity is interpreted as a form of perception that acts very rapidly. The next focus of investigating atmosphere relates to the relationship between corporeality and the overall materialization of space, where bodily experience is considered through a synesthetic experience of space. In addition to the relationship between humans and space, he sees the concept of atmosphere also encompassing the relationship of objects with their surroundings into which they are placed, i.e., the way they are situated and become a constructive part of the environment. In line with these characteristics, Zumthor identifies twelve themes essential in his work for achieving architectural atmosphere.

More Precisely, Zumthor elaborates on each of the first nine themes, such as The Body of Architecture, Material compatibility, The Sound of a Space, The Temperature of a Space, Surrounding Objects, Between Composure and Seduction, Tension between Interior and Exterior, Levels of Intimacy, and The Light of Things, in each chapter individually as design approaches in his study. Additionally, he adds three more aspects that personally motivate him: Architecture as Surroundings, Coherence, and The Beautiful Form. [15:21-73]

The themes Material compatibility, The Sound of a Space, The Temperature of a Space, and The Light of Things are related to the materialization of objects and the properties of applied materials. Here, Zumthor examines material and haptic qualities, rhythm, and light, which are essential in his work for achieving architectural atmosphere, explaining them as guiding principles in his practice.

All the mentioned themes can be summarized briefly as follows:

1. **The Body of Architecture:** Architecture resembles bodies, composed of various elements that create a unified whole.
2. **Material Compatibility:** Materials interact, potentially complementing or contrasting each other, thus shaping the atmosphere.
3. **Sound of Space:** Spaces possess acoustics that can influence the atmosphere, affecting mood and dynamics.
4. **Space Temperature:** Temperature can impact space usage and its overall atmosphere.
5. **Surrounding Objects:** Objects within a space contribute to its atmosphere and serve specific purposes.
6. **Freedom of Movement:** Architecture should facilitate freedom of movement, enabling exploration and discovery.

7. **Tension between Interior and Exterior:** Interior and exterior spaces can merge seamlessly, without clear separation.
8. **Levels of Intimacy:** Various factors such as size, dimensions, and lighting influence the intimacy of a space.
9. **Light on Things:** Light and shadows significantly affect the atmosphere of a space.
10. **Architecture as Environment:** Architecture is influenced by the environment and, in turn, influences it.
11. **Coherence:** The success of architecture is measured by its effectiveness and functionality.
12. **Aesthetics:** The final form and atmosphere of architecture should evoke emotions.

Unlike Böhme, who provides general classifications of atmosphere generators and the character of atmospheres that arise depending on the combination and interdependence of generators, Zumthor approaches atmosphere-building from a design position and formulates a personal approach as a kind of manifesto of architectural quality, as outlined in this book. However, despite being set from a personal and authorial perspective, his thinking is of great significance for bridging theory and practice in the context of the phenomenon of atmosphere.

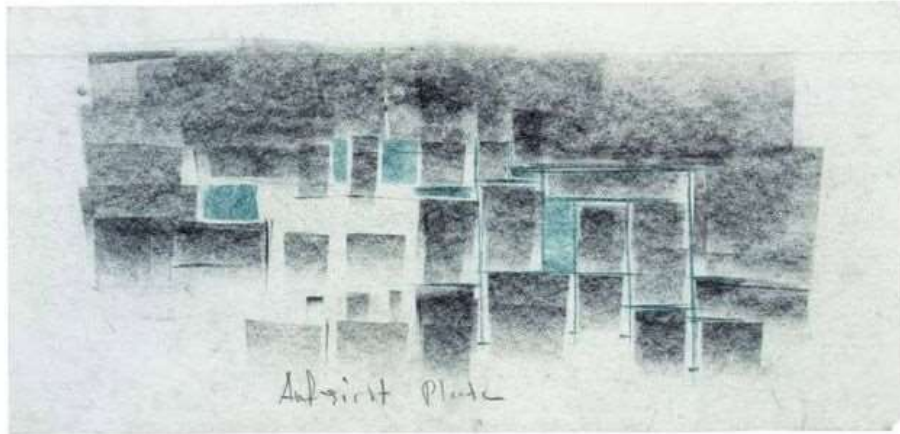


Figure 1. Drawing and Creating Atmosphere - For Zumthor, the phenomenon of atmosphere represents essential importance for constructing a concept, and this is recognized in the initial sketches. His drawings already possess atmosphere and an emotional form of perception that he aims to achieve. The character of Zumthor's drawings suggests an experience of space that involves multisensory perceptions, i.e., atmosphere and mood.

The following is an analysis of the applied goals of atmosphere building using the concrete example of the Therme Vals project by architect Peter Zumthor. Therme Vals, built in 1996 in Switzerland, stands as one of the most representative examples of architecture for considering atmosphere as a quality of architecture.

Architecture as Environment: Zumthor directly draws inspiration from the complex topography of the site where mountain silhouettes, forests, and rivers intersect - which inherently carries the recognizable atmosphere of the Alpine location. This informs the shaping of space and internal atmosphere. It pertains not only to the physical characteristics of the location but also to the sounds, scents, and temperature as intangible atmosphere generators, which infiltrate as elements into the concept of forming Therme Vals.



Figure 2. Architecture as Environment

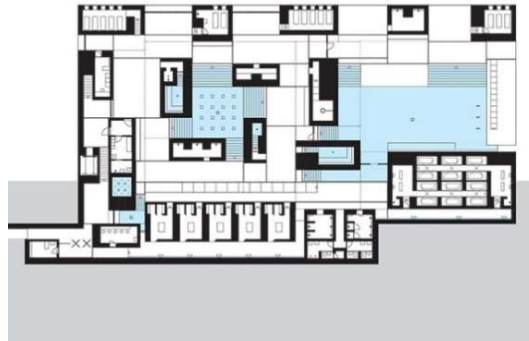


Figure 3. The Body of Architecture

The Body of Architecture: The geometric forms of the Therme space evolve from the topography and geology of the site, where both vertical and horizontal volumes are carved from the mountainside, some of which are filled with water. [16] The aim was to blend the characteristics of the location with the constructed structure into a unified whole, but this does not exclusively refer to the physical characteristics of the location as stated.

Material compatibility; The Sound of a Space; The Temperature of a Space; The Light of Things: As Zumthor emphasizes, the primary generator of atmosphere is the material itself. Atmosphere is crafted stone by stone, along with other non-material generators such as light, sound, scent, and temperature, in shaping the space and material use. Inspiration for such an approach stems from the appearance of surfaces of natural materials predominant in the environment.

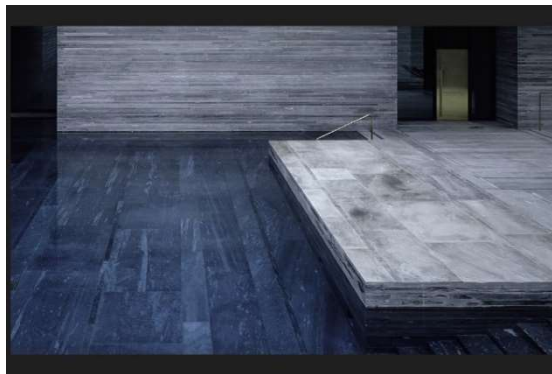


Figure 4. Material compatibility



Figure 5. The Light of Things

Freedom of Movement: Visitors to the Therme Vals are not confined within rigid programmatic boundaries; rather, they are essentially allowed to roam freely, creating their own ritual and discovering various spatial sensations. Through the experience of movement, navigating through the interior of the pool, light, sound, and temperature take on different characters, thereby shaping the atmosphere experience to its fullest.

Tension between Interior and Exterior: The volumes of the interior and exterior spaces confront and blend into one unified whole. Their undefined boundary allows for the alternating melding of the interior and exterior space. The geometry of the form frames the sky and surrounding mountain peaks.



Figure 6. Tension between Interior and Exterior



Figure 7. Levels of Intimacy

Levels of Intimacy: The bathing ritual framework is constructed using five-meter-high units that are beyond the scale of the human body, within which various levels of intimacy are formed, depending on the size of the units and the character of the lighting.

Starting from a clear image of spatial wholeness, Zumthor dedicates himself to each element of that space that contributes to the whole: from material processing, dynamics of openness and closure,

light and shadow, to the relationship between landscape and architecture. The experience of a relaxing atmosphere is realized through the stimulation of bodily interactions with the space, producing a sense of free yet guided movement where feelings of anticipation and surprise arise. In this way, Zumthor constructs a strong image of the atmosphere that the object produces together with the environment as a visual and bodily experience, and the intensity of that image becomes an integral part of the user's experience and memory.

4. CONCLUSION

The findings presented in this study indicate the relevance and significance of the atmosphere phenomenon in contemporary architectural theory and practice. The theoretical framework of this work encompassed key interpretations that contextualize the atmosphere phenomenon in architecture by defining its elements, modes of perception, and questions through the construction of atmosphere. Through the analysis of various perspectives and approaches, it was explored how the atmosphere is experienced and constructed within architectural space. For the precise definition of the atmosphere phenomenon in architecture, it was crucial to analyze the ways in which it is experienced and perceived as a spatial-emotional phenomenon. In addition to examining the key theoretical concepts of atmosphere in architecture developed by Böhme and Pallasmaa, this work also considered the practical application of building atmosphere through the example of architect Zumthor's work, based on his design principles. The main aim of the research was a deeper understanding of this phenomenon through theoretical analyses and practical approaches, with the intention of enhancing the methodology of architectural design. This combination of theoretical and qualitative methods enabled the consideration of atmosphere as a significant aspect of architectural quality, contributing to both theoretical and practical fields. At the same time, the research emphasized the importance of atmosphere as an integral part of the architectural experience, opening new perspectives in the study and design of space. Through theoretical insights and the potential for practical application in education and architectural practice, this research provides a contribution to a better understanding of the importance of studying the phenomenon of atmosphere in architecture. The concrete application of the research findings relates to the possibilities of new research, approaches, and techniques for building atmosphere in architectural practice.

LITERATURE

- [1] C. Borch, Eds. *Architectural Atmospheres: On the Experience and Politics of Architecture*. Basel: Birkhäuser, 2014.
- [2] J. Pallasmaa and P. Zumthor, "Building Atmosphere," *OASE*, vol. 91, Rotterdam, Netherlands: NAI Publishers, 2013.
- [3] C. Borch, "Introduction: Why Atmospheres?" in *Architectural Atmospheres: On the Experience and Politics of Architecture*, C. Borch, Ed., Basel: Birkhäuser, 2014 pp. 6–17.
- [4] M. Wigley "The Architecture of Atmosphere." vol. 68, pp. 18-27, 1998.
- [5] G. Böhme, *The Aesthetics of Atmospheres*. London: Routledge, 2017.
- [6] G. Böhme, *Atmospheric Architectures: The Aesthetics of Felt Spaces*. New York: Bloomsbury Academic, 2017.
- [7] G. Böhme, "Encountering Atmospheres", in: *OASE 91, Building Atmosphere*, ed. J. Pallasmaa, P. Zumthor, Rotterdam: NAI Publishers, 2013. pp. 93–100.
- [8] J. Pallasmaa, "Space, place and atmosphere. Emotion and peripheral perception in architectural experience", in *Architectural Atmospheres, On the Experience and Politics of Architecture*, C. Borch, Ed., Basel: Birkhäuser, 2014, pp. 19-27.
- [9] J. Pallasmaa, F. Mallgrave, M. A. Arbib, *Architecture and neuroscience*, Finland: Tapio Wirkkala-Rut Bryk Foundation, 2013.
- [10] M. Merleau-Ponty, *Fenomenologija percepcije*, Sarajevo: Veselin Masleša, 1978.
- [11] J. Pallasmaa, "Atmospheres, Art, Architecture", in *Architectural Atmospheres, On the Experience and Politics of Architecture*, C. Borch, Ed., Basel: Birkhäuser, 2014, pp. 91–108.
- [12] M. Milić Aleksić, "Communicating Architectural Traits on the Example of Zlatko Ugljen Works", Ph.D. dissertation, Arhitektonski Fakultet, Univerzitet u Beogradu, Beograd, Srbija, 2017.
- [13] J. Pallasmaa, *The Eyes of the Skin: Architecture and the Senses*, New York: John Wiley, Academy Press, 2005.
- [14] G. Böhme, C. Borch, O. Eliasson, J. Pallasmaa, „Atmospheres, Art, Architecture: A Conversation between G. Böhme, C. Borch, O. Eliasson, and J. Pallasmaa.“ in *Architectural*

Atmospheres: On the Experience and Politics of Architecture, C. Borch, Ed. Basel, Switzerland: Birkhäuser, 2014, pp. 90-107.

- [15] P. Zumthor, *Atmospheres: architectural environments, surrounding objects*. Basel, Boston Berlin: Birkhäuser, 2006.
- [16] I. Živanović, "Architecture as an Assemblage of Concept and Percept", Ph.D. dissertation, Arhitektonski Fakultet, Univerzitet u Beogradu, Beograd, Srbija, 2016.