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ARCHITECTURE AS A WORK OF ART AND A TECHNICAL CREATION

ARCHITEKTURA JAKO DZIEŁO SZTUKI I TWÓR TECHNICZNY

Abstract

The perception of architecture is realized as a result of the observer's metaphorical journey through the designed space, it is a specific reading of space at various levels of feeling. Contemporary architecture shows a break from the habits of perceiving the shape and style of buildings. Combined with technology, it gives new opportunities to create space and, as a result, surprise and absolute novelty. Such a system of space creation, an innovative vision of a seemingly floating dome under which seemingly submerged objects of the exhibition space are hidden, is represented by the new Louvre in Abu Dhabi by Jean Nouvel. The artwork's perforated dome, light-transmitting roof structure, and watertight basements and tide pools in the galleries create the illusion of a "museum in the sea" while protecting artworks, artifacts, and visitors from the corrosive marine environment. The consequence of the original Thought (Idea) is the ultimate goal. *Concept, context, content*, assuming consistency in the continuation of the direction of subsequent activities at individual stages, giving it continuity – format the entire design process.

Keywords: work of art, technical creation, Louvre Abu Dhabi

Streszczenie

Percepcja architektury jest realizowana w wyniku metaforycznego podróżowania obserwatora po zaprojektowanej przestrzeni, stanowi swoiste czytanie przestrzeni na różnych poziomach odczuwania. Współczesna architektura ukazuje oderwanie się od przyzwyczajenia odbioru kształtu i stylu budowli. W połączeniu z technologią daje nowe możliwości kreowania przestrzeni, a w efekcie zadziwienie i absolutną nowość. Taki system kreacji przestrzeni nowatorskiej wizji pozornie pływającej kopuły, pod którą ukryto pozornie zanurzone obiekty przestrzeni wystawowej, reprezentuje nowy Luwr w Abu Dhabi autorstwa Jeana Nouvela. Perforowana kopuła dzieła, konstrukcja dachu przepuszczająca światło oraz wodoszczelne piwnice i baseny pływowe w galeriach, tworzą iluzję „muzeum w morzu”, chroniąc jednocześnie dzieła sztuki, artefakty i gości przed korozyjnym środowiskiem morskim. Konsekwencją pierwotnej Myśli (Idei) jest ostateczny cel. *Koncepcja, kontekst, tożsamość*, przy założeniu konsekwencji w kontynuacji realizowania kierunku kolejnych działań na poszczególnych etapach, nadając mu ciągłość – formatują cały proces projektowy.

Słowa kluczowe: dzieło sztuki, twór techniczny, Luwr Abu Dhabi

A building is architecture born from the human heart, a constant partner of the earth, a companion of trees, a true reflection of man in the kingdom of his own soul. His building is therefore a sacred space in which he seeks escape, rest and answers to the needs of the body, especially the mind. And so our machine-age building no longer has to look like a machine, and a machine doesn't have to look like a building¹

Frank Lloyd Wright

1. INTRODUCTION

Architecture as a fine art is the result of the architect's creative thought in the same way as the creative thought of painters or sculptors. Undoubtedly, an architect is a sculptor of the structure of a building and a painter of recording ideas and concepts. The structure made based on the vision is an actual creation of a work of art, a technical creation based on calculations.

Human beings try to materialize their thoughts, feelings and images by creating abstract forms and spaces in their imagination, and they also look for geometric patterns and comparisons in nature. The result of such activities is an architectural, sculptural, painting, graphic and creative urban space on a larger scale created by people.² "A place is a type of item. Objects and places define the space, giving it a geometric personality."³ An architectural object is a place in a separate space. An object-place in space is shaped in various ways, but in such a way that it can only constitute a framework for events, without a specific definition or method of implementation. Carving out space for a place is defined in two ways. The first one refers to the shaping of the structure in the human mind, the second one concerns the materially created structure,⁴ it is a variable structure, defined by time and people. Architecture is a form of separating space and constructing it from material and immaterial elements, just like painting, sculpture, graphics, and artistic crafts. Architecture is the art of building, a combination of practice and theory.

2. INTERPRETATIONS

Interpretations of architecture as a work of art should start with Vitruvius, for whom architecture consists of: *ordinatio* – ordering the building and maintaining the proportions of the entire work, *dispositio* – appropriate arrangement of building elements, obtaining the result of the work, *eurythmy* – appropriate ratio of individual building elements, *decor* – impeccable appearance of the whole composition of all building elements, *distributio* – economic

¹ J. Wines, *Zielona architektura*, Taschen/TMC Art., Raszyn 2008, p. 64.

² Yi-Fu Tuan, *Przestrzeń i miejsce*, Państwowy Instytut Wydawniczy, Warszawa 1987, p. 30.

³ *Ibidem*.

⁴ G. Nawrot, *Permanence in architecture* [in:] W. Celadyn (ed.), *Defining the architectural space. Tradition and Modernity in Architecture*, vol. 2, Oficyna Wydawnicza ATUT – Wrocławskie Wydawnictwo Oświatowe, Wrocław 2019, pp. 105–112.

management of materials and space, material savings in construction and the economic balance of construction expenses.⁵ The return to the above-mentioned guidelines was discovered by the art of the Renaissance thanks to the work of Alberti, for whom architecture as the art of building consists entirely in drawing and execution.⁶ Grzegorz Nawrot quotes the Albertian literary idea in a treatise on painting, the so-called *invenzione*, confronting architecture as a means of the mentioned *invenzione*, as the meaning of a story about architecture, which is a means of communication and shaping space, influencing the behavior of people in the designed structure.⁷ The author in “Shades of interpreting the truth of architecture” defines architecture as a language capable of conveying meaning and influencing behavior, and an architectural object is a specific place in a separate space,⁸ however, beauty is not always an emanation of truth.⁹ We can look for beauty in all architectural contexts and events.¹⁰ Referred to architecture and beauty Aristotle’s trichotomous division of types of lifestyles and activities *Theory, Action, Creativity* show a new meaning in the form of the beauty of theory, the beauty of action and the beauty of creativity. Theory relates to the project idea, action relates to professional skills, and creativity constitutes the idea of the project idea.¹¹ Art becomes visualized, it is the meaning of creative thought in the form of an architectural record. Architecture, on the other hand, is a spatial means of mass communication, a spectacle in which a constant exchange of events takes place between the *arena* and the *cavea*.¹² Referring to the three levels of feeling awareness and designing spaces defined by Grzegorz Nawrot, it is worth quoting Bernard Tschumi, who uses the statement that there is no architecture without a concept, a superior idea, a diagram that gives the building coherence and identity. Moreover, concept and context are inseparable and often contradictory. A concept can negate or ignore the circumstances surrounding it, while context can blur or weaken the precision of an architectural idea. Painters and sculptors use the same creation guidelines. Italian architect and architectural theorist, Bruno Zevi, divided the interpretations of architecture and its space into three categories: content interpretations, physiological and psychological interpretations, and formalistic interpretations. The psychophysiological interpretation symbolizes the definition of the order of architecture in the context of the human body, quoting Vitruvius for whom it is an interpretation related to proportions and symbolism of shape and form.¹³ For the leading representative of modernism, Le Corbusier, “Architecture is about establishing moving relationships based on basic materials,”¹⁴ for Loos, “When we

⁵ Vitruvius, *O architekturze ksiąg dziesięć*, Państwowe Wydawnictwo Naukowe, Warszawa 1956, p. 15.

⁶ L.B. Alberti, *Ksiąg dziesięć o sztuce budowania*, Państwowe Wydawnictwo Naukowe, Warszawa 1960, p. 19.

⁷ *Ibidem*, p. 47.

⁸ G. Nawrot, *Shades of interpreting the truth of architecture* [in:] T. Kozłowski (ed.), *Defining the architectural space. The Truth and Lie of Architecture*, vol. 3, Oficyna Wydawnicza ATUT – Wrocławskie Wydawnictwo Oświatowe, Wrocław 2020, p. 59.

⁹ *Ibidem*, p. 61.

¹⁰ G. Nawrot, *Architektura – sen o miejscu dla pięknych zdarzeń*, “Czasopismo Techniczne, Architektura” 2007, no. 6-A, p. 355.

¹¹ *Ibidem*, p. 355.

¹² *Ibidem*, p. 353.

¹³ B. Zevi, *Architecture as a space. How to look AT architecture*, Horizon Press, New York 1957.

¹⁴ Le Corbusier, *W stronę architektury*, Fundacja Centrum Architektury, Warszawa 2012, p. 61.

find a mound in the forest, six feet long and three feet wide, in the shape of a pyramid, we get serious and something tells us deep inside: a man is buried here. This is architecture.”¹⁵ For Mies van der Rohe, architecture is a rational building in which each element has its place, “One structure brought to its precise expression. This is what we call architecture.”¹⁶

Architecture adopted as a means of transmitting information does not define only utilitarian purposes, but serves abstract purposes,¹⁷ and actions that construct elements commonly perceived as *abstract* significantly direct its perception. Those that do not result directly from the function of an object can be commonly considered abstract from the need to meet utilitarian legal and technological requirements.¹⁸ The essence of perceiving the reality of the world of Architecture results not only from the superficial perception of material external dimensions, reflected in the message with a one-dimensional image, a simplified word: *form*. The common perception of an object is the interpretation of the structural essence by the external appearances of various elements. It appears as a temporary staffage or a materially durable façade covering the shaped mechanism of the object. It covers it from the outside as a façade or covers its internal structure from the inside.¹⁹ Such hidden structuralism and the symbolic dimension of architecture conceals and distorts the profound reality of the Louvre in Abu Dhabi.

Umberto Eco used Harold Koenig’s statement: *the denotations of an architectural sign are existential (they are the quanta of human existence)*. In the context of museum architecture, *denotations* define the users of the space.²⁰ He emphasized that the knowledge of a designer and pattern architect is insufficient to make a new form functional unless it is based on codification processes. Form denotes function solely on the basis of a specific code system.²¹ Architecture functions in a commodity society, subject to market conditions.

Jean Baudrillard touching on the philosophical aspect of the hyperreality of the state and place in space, indicates that space is a state of credibility in feeling and perceiving the external architecture of the building. The hyperreality of a state and place in space is a way of defining felt architecture, in which the image of the space of *living* is a set of signs. It shows true space, reflecting reality in a natural way, clearly assigned to the function performed by an architectural object, and space distorting deep reality, where the external image of the object does not clearly define the signs. The reflection of deep reality conceals and distorts deep reality, conceals the absence of deep reality and remains unrelated to any reality, remaining a *simulacrum*, a so-called *pure simulation*.²²

¹⁵ A. Monestirolí, *Osiem definicji architektury*, “Pretekst” 2004, no. 1, p. 10, <https://repozytorium.biblos.pk.edu.pl/resources/35208> (access: 2.06.2023).

¹⁶ *Ibidem*, p. 11.

¹⁷ S. Syrkus, *Preliminarz architektury*, “Praesens” 1926, no. 1, p. 6.

¹⁸ G. Nawrot, *EHTIC Zabrze. Inspiracyjne konstruowanie przestrzeni architektonicznej*, “Builder” 2022, no. 300(7), pp. 34–38. DOI: 10.5604/01.3001.0015.8801.

¹⁹ G. Nawrot, *Shades...*, *op. cit.*

²⁰ Denotation – the semantic scope of a name, extension (comparison of referent; connotation); Latin Denotatio ‘designation; observation’ from denotare ‘to notice; to note down’, source: W. Kopalinski, *Słownik wyrazów obcych i zwrotów obcojęzycznych z almanachem*, Świat Książki, Warszawa 2000, p. 210.

²¹ *Ibidem*, p. 288.

²² A. Gąsowska-Kramarz, *Hiperrzeczywistość stanu i miejsca w przestrzeni* [in:] M. Kuczera (ed.), *Nowe wyzwania dla polskiej nauki. Materiały Konferencji Młodych Naukowców nt.: Nowe Wyzwania dla Polskiej Nauki*, Kraków 5 i 12.12.2020, Kraków, Creativetime, p. 12.

3. RESEARCH METHOD

The method of logical argumentation was adopted for the research. An interpretation of reality was carried out in order to understand the existing conditions. The analysis carried out allowed us to focus on the significance and meaning of the obtained data. The author's descriptions, explanations and logical interpretation were used as research techniques.²³

4. RESEARCH

The basic goal is to present the contemporary context of the development of the interpretation of architecture as a technical creation and a work of art. Analyzing the structure of reality and the immediate human environment, the study was based on a subjectively selected object of the Louvre in Abu Dhabi by Jean Nouvel.

4.1. CONCEPT, CONTEXT, CONTENT

Bernard Tschumi draws attention to three basic criteria for shaping architectural structures of space in the process of creation that build the identity of the place:

- *concept*,
- *context*,
- *content*.

The complex and productive triangulation of the architectural concept, context and content allows for the statement that there is no architecture without a concept, an overarching idea that gives the building coherence and identity. Architecture does not exist without context – historical, geographical, cultural. Concept, context and content may be consistent or intentionally inconsistent. Contrary to the contextualist movement of the 1980s and 1990s, which called for architecture to blend into its surroundings, Tschumi argues that buildings may or may not adapt to their surroundings, the decision should always be strategic. As society developed, he believed that architecture announced evolution, generating concepts and questioning and replacing ancient, outdated architecture.²⁴

4.2. ARCHITECTURE AS A WORK OF ART AND A TECHNICAL CREATION

Museum complex – a work of art

The futuristic complex of buildings is the work of the French architect Jean Nouvel. The style is an expression of the UAE's aspirations and France, to create a universal museum uniting all cultures. The direction chosen by the architect is the result of observing the play of light, shadow, movement, reflections, microclimate and mood. The openwork dome provides shelter and coolness on hot days. You can get to the museum by boat or along the promenade along the coast. The exhibition space was designed in connection with the

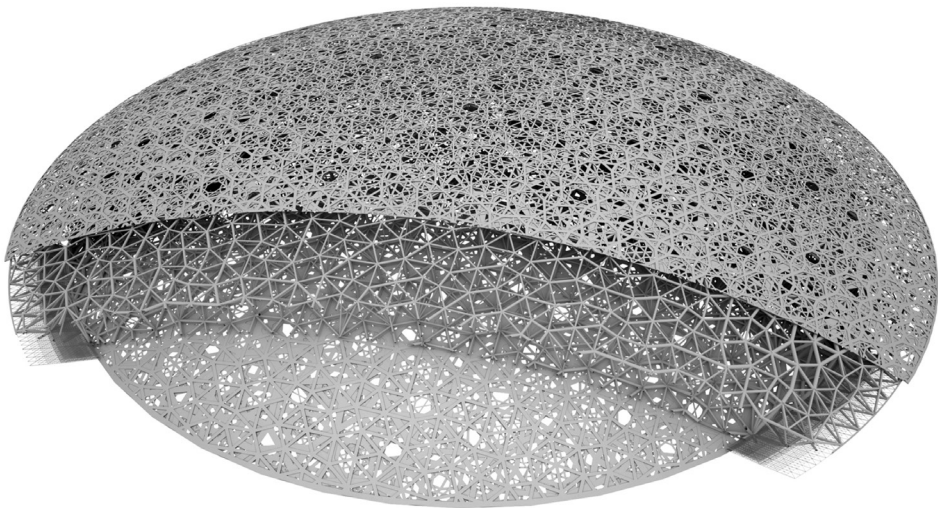
²³ E. Niezabitowska, *Metody i techniki badawcze w architekturze*, Wydawnictwo Politechniki Śląskiej, Gliwice 2014, p. 186.

²⁴ B. Tschumi, *Event-cities 3. Concept vs. context vs. content*, The MIT Press, Cambridge 2004, p. 15.

historic Arab medina. An aluminum and steel openwork dome covers the facility, whose form refers to mosques, mausoleums and Arab madrasas. The exhibition spaces are focused on twelve thematic scenes divided into twenty-three galleries, passages and an internal courtyard. The exhibition covers the ancient world, the Middle Ages, early globalization and modern times. The permanent exhibition consists of four wings corresponding to four great eras in human history.²⁵

Dome – a technical creation

Building domes in Arab culture has a long tradition and symbolic character. In Abu Dhabi, on the artificial island of Saadiyat, Jean Nouvel interpreted the symbolism using innovative materials. The dome structure rests on four columns, 110 meters apart and 180 meters in diameter. At night, the dome transforms into a canopy decorated with stars, visible from both outside and inside. The structure consists of eight structural layers of offset aluminum profiles of non-uniform size, arrangement and geometry. In addition to the dome, an important aspect is the floor of the exhibition spaces, made of large stone modules. The basic module measures 140 x 23.3 centimeters framed with a thin bronze frame. In terms of connections, the basic module gives way to a more complex form of 16 stone modules placed in the same bronze frame. In this way it is possible to install the electrical connection anywhere on the floor, creating a sophisticated layout that does not give any clues about the technical aspects of the floor.²⁶



Ill. 1. Dome, conceptual drawings, source: J. Nouvel, *Louvre Abu Dhabi. Story of an architectural project*, Skira, Paris 2019, p. 41.

²⁵ J. Nouvel, *Louvre Abu Dhabi. Story of an architectural project*, Skira, Paris 2019.

²⁶ *Ibidem*.



Ill. 2. Dome, conceptual drawings, photo by author.



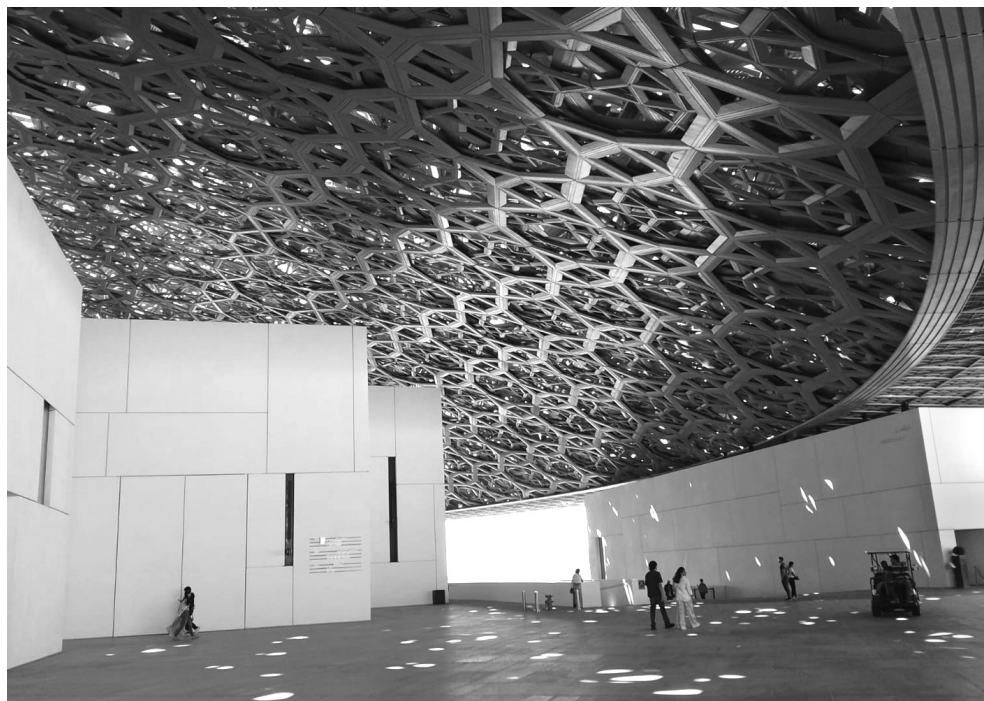
Ill. 3. Roof plan with a dome, source: J. Nouvel, *Louvre Abu Dhabi. Story of an architectural project*, Skira, Paris 2019, pp. 24–25.



Ill. 4. Roof plan without dome, source: J. Nouvel, *Louvre Abu Dhabi. Story of an architectural project*, Skira, Paris 2019, p. 115.



Ill. 5. Inner courtyard, photo by author.

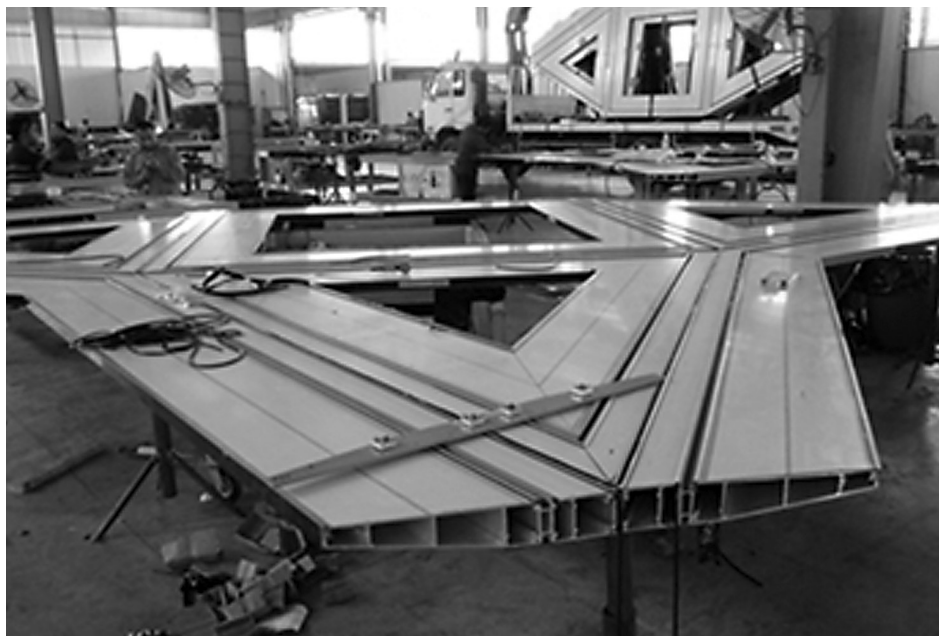


Ill. 6. Inner courtyard, photo by author.

5. SUMMARY

The unique facility by Jean Nouvel is one of the most ambitious cultural projects in the world. The building is proof of the extraordinary international cooperation of Waagner-Biro from Austria, the elumatec AG – White Aluminum from the UAE and the elumatec AG from Germany. The implementation of the project contributed to the creation of two machining centers for the completed dome profiles. It is a five-axis machining center for aluminum profiles and thin-walled steel profiles. The technical creation was based on comprehensive support at the design and construction stages, digital data analysis, production processes, processing and assembly. The detailed design was carried out based on the necessary CSV files, from which elumatec AG took over the important parameters. Based on the input data, a total of 21 master files were created and production data for approximately 500,000 profiles was transferred to eluCad. The completed technical creation, through software and workmanship, has become a work of art of contemporary architecture.²⁷ However, the architect became a sculptor of the building's structure and a painter of recording ideas and concepts.

²⁷ Kopuła nowego Luvru w Abu Zabi. Arcydzieło inteligentnej techniki obróbki profili elumatec [in:] elumatec, 11.22.2017, <https://www.elumatec.com/pl/historia-sukcesu/kopula-nowego-luvru-w-abu-zabi> (access: 6.06.2024).



- III. 7. Detail of the star module of a dome consisting of approximately 7,800 full stars, source: Kopuła nowego Luwru w Abu Zabi. Arcydzieło inteligentnej techniki obróbki profili aluminiowych [in:] *alumatec*, 11.22.2017, <https://www.alumatec.com/pl/historia-sukcesu/kopula-nowego-luwru-w-abu-zabi> (access: 6.06.2024).

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