

JANUSZ BARNAŚ*

THE PROFESSIONAL TOOLSET OF PETER ZUMTHOR

WARSZTAT PETERA ZUMTHORA

Abstract

The article is an attempt at outlining the relationships between rational and intuitive considerations in architectural design. This is associated with relationships between architecture and the arts in contemporary times. The new approach to broadly understood creation – unrestrained by the framework of classical and previously defined disciplines – makes greater creative freedom possible. New possibilities of shaping the architectural forms of buildings result from mutual relationships between architecture in its literal, current understanding and the broadly understood artistic disciplines with which architecture was previously not associated with. These changes are a new cause for the ongoing discussion about the role of rational and intuitive factors in the creative process of the production of a work of architecture. The author's analysis of the work of one of the most outstanding contemporary architects shows the secrets of the architectural professional toolset and the role of the two seemingly opposing factors mentioned above.

Keywords: architecture, architectural form, art, architectural expression, rationalism, intuition, creation

Streszczenie

Tekst jest próbą zarysowania związków pomiędzy przesłankami racjonalnymi i intuicyjnymi w projektowaniu architektury. Ma to związek z relacjami pomiędzy architekturą i sztuką w czasach współczesnych. Nowe podejście do kreacji szeroko pojętej i nieograniczonej w ramach klasycznych dotychczas definiowanych dziedzin umożliwia większą wolność twórczą. Powstają nowe możliwości kształtowania form architektonicznych obiektów wynikające z wzajemnych związków pomiędzy architekturą w jej dosłownym dotychczasowym pojęciu i dziedzinami sztuki szeroko pojętymi, których dotąd z architekturą tradycyjnie nie kojarzono. Zmiany te są nowym przyczynkiem do trwającej dyskusji na temat udziału czynników racjonalnych i intuicyjnych w procesie twórczym kreacji dzieła architektonicznego. Przeprowadzona na podstawie twórczości jednego z najwybitniejszych architektów czasów współczesnych analiza pokazuje tajniki warsztatu architektonicznego twórcy i rolę obu tych wydawałoby się przeciwnych czynników.

Słowa kluczowe: architektura, forma architektoniczna, sztuka, wyraz architektoniczny, racjonalizm, intuicja, kreacja

* Ph.D. Arch. Janusz Barnaś, Institute of Architectural Design, Faculty of Architecture, Cracow University of Technology.

1. Introduction

Architecture, apart from satisfying purely functional and utilitarian needs, should be the result of creative passion, leaving a unique trace in our conscious and our surroundings. Over the course of the discussion about architecture and the methods of its creation, one question ceaselessly comes up: Rationalism or intuition? What is dominant in the creative process? This is also associated with a new understanding of the definition of architecture and the expansion of its scope of impact, as well as its intersection with other artistic disciplines. Matters of the integration of architecture and the arts are not a purely contemporary phenomenon. Despite the development of new technology and, as a consequence, civilisational progress, all of the achievements that are a result of them remain but tools – that are constantly being improved – in the hands of the more or less capable artisans of architecture, or of its true masters. Achievements in this field lead both to the development of new types of tools for the creation of architecture and architectural materials that possess better properties and technical parameters for the erection of buildings themselves. This makes it possible for architectural forms featuring greater structural spans, increased resistance, strength and durability to be built. The much greater capabilities in terms of the shaping of architectural form and the expression of buildings affect the manner of their design. Our own understanding and knowledge about the entire palette of new or modified construction materials that are the building blocks of architecture changes as well.

2. Relationships between architecture and art

Without a doubt, the paths of arriving at specific solutions in architecture should not be detached from the context in which it is being created. The mutual relationships between architecture and art bring us newer and newer experiences. The rational path of arriving at design solutions is associated with an engineering-like approach, one that is based on references to science, calculations and strictly formulated and clearly interpreted definitions, while the intuitive path is based on feelings, impressions, transformations of reality and associations that come and flow in a manner that is linked with sensitivity and feeling.

The ongoing process of the integration of the visual arts and architecture, which is a phenomenon of the beginning of the twenty-first century, is also not without significance¹. In the constantly ongoing discussion on the subject of the relationships between architecture and art there appear postulates concerning restoring architecture to its rightful place in contemporary culture. Architecture should not be solely perceived as an engineering and construction-related practice, but as an artistic discipline². The creative work of architects reaches directly for the material of the art of installations. Works of mobile and temporary architecture appear, architects make decisions concerning the shape and specificity of contemporary public

¹ G. Świtek, *Gry sztuki z architekturą: Nowoczesne powinowactwa i współczesne integracje*, Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika, Toruń, 2013, p. 17.

² *Ibidem* [from] J. Rykwert, *The Judicious Eye: Architecture Against the Other Arts*, University of Chicago Press, Chicago, 2008.

spaces. A broadly recognised need for creating or once again finding a design theory³ that provides a basis for the supplementation of the architectural toolset and the creation of styles within architecture has appeared.

3. The creative path

The process of creating architecture and the associated knowledge and skills have for centuries been passed down from generation to generation and later written down and documented, both during the ancient period⁴ and during the Renaissance⁵, and are based rational and intuitive factors. The scope of an architect's skills was very broadly defined at the time⁶. In the distant past, rational factors were based on empirical foundations, while along with the development of science and contemporary technology, they became enriched by a scientific groundwork. Every architect gains experience over the course of using tools and materials, becoming familiarised with them and perfecting their professional toolset. The advantage of elements of one of these groups is very difficult to assess due to the individual approach of designers to the creative process. We are dealing with the coexistence of both methods here – reason provides us with a thesis that takes on a specific shape, affecting a vision and transforming it. Simultaneously, the mind constantly evaluates and summarises the process of constant assessment, correcting searches conducted on the basis of creative intuition⁷. Martin Heidegger pointed to the inseparable mutual relationship of the artwork with the person of its author in the process of creation⁸. Intuitive actions during the process of design are supported by creative experiments based on modelling in the broadest sense of the word, for instance the use of clay models scanned and converted into a virtual model, as in the case of Gehry⁹. The sketch also plays an essential role in the process of design¹⁰. The character of the process of creation is very emotional, while effects of the imagination are transferred from the brain to the hand and onto paper, engaging in mutual interactions. The drawing and the model are a recording of not only the form, but also of the energy contained in the massing and the structure of the future building. Over the course of the creative path, an evolution of the creative process can be observed. It is a consequence of gaining new experiences arising from both the design process and cognitive processes. The process is

³ A. Monestirolli, *Ciągłość doświadczenia klasycznego*, [in:] *Definiowanie przestrzeni architektonicznej*, Czasopismo Techniczne, Architektura, Kraków, 2009, p. 99.

⁴ M. Vitruvius, *O architekturze ksiąg dziesięć*, PWN, Warszawa, 1956.

⁵ A. Palladio, *Cztery księgi o architekturze*, Wydawnictwo Naukowe PWN, Warszawa, 1995

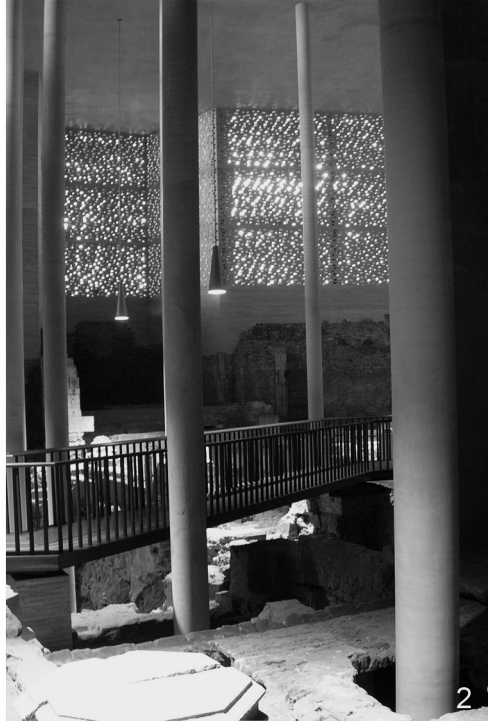
⁶ Leonardo da Vinci, letter to Lodovico Sforza, circa 1483, <https://www.encyclopedia.com/people/literature-and-arts/european-art-1599-biographies/leonardo-da-vinci-retrieved> on 23.06.2018.

⁷ R. Barełkowski, *Zapiski o procesie projektowym*, *Przestrzeń i Forma*, 12/2009, p. 73.

⁸ “The artist is the source of the artwork. The artwork is the source of the artist.”, Heidegger M., *O źródle dzieła sztuki*, *Sztuka i Filozofia* 5, 1992, p. 9.

⁹ R. Barełkowski, *Zapiski o procesie projektowym*, *Przestrzeń i Forma*, 12/2009, p. 73 [from] Zaera (1995:153–154 p.).

¹⁰ “The flow of energy in the drawing is translated into concrete form and structure. The building itself – resting on two points and taut” – almost floats Coop Himmelblau, <http://www.coop-himmelblau.at/architecture/projects/open-house/> - retrieved on 19.06.2018.



continuous throughout the entirety of its course. As time goes by, architects develop their own creative methods as they work, based on their previous experiences, knowledge and personality. These methods undergo constant evolution, both as a result of individual development and the gaining of new experiences over the course of successive creative processes.

There is currently a lack of up to date and holistic analyses of the subject of the creative process of design and its conditions. Over the course of the process of design, a designer must face numerous problems of a varying nature¹¹: the continuity of the place and the surroundings in the social, cultural and formal sense, the problem of continuation or the problem of impact. In the process of design, architects use knowledge and skills from many fields of science and the arts. Possessing such skills has been useful and desirable for a very long time, as they already enriched the professional toolset of the great architects of the Renaissance¹². In his deliberations, Heidegger underlined the poetic character of the arts and its association with objective truth that should be contained within it¹³.

4. The personality and professional toolset of Zumthor

Without a doubt, a designer's personality has an essential impact on the selection and development of their creative method. Zumthor is not one to strive for fame. He belongs to those designers who appreciate silence. His personality is reflected in the effects of his work. Zumthor rarely develops designs, carefully picking his commissions. He works thoughtfully, avoids popularity and does not fall for financial enticement. On the occasion of the opening of the Serpentine Gallery that he had designed in London's Hyde Park, Peter Zumthor stated *I do not work for money; I'm not going for commercial projects. I go for projects where I can put my heart into it and which I think are worthwhile*¹⁴.

The designer takes up the development of those designs as to which he is sure that they will be constructed according to his design and will not be changed in any way. He then

¹¹ R. Barełkowski, *Zapiski o procesie projektowym*, op.cit., p. 69–86.

¹² D. Dickinson, *The Beautiful Drawings of Michelangelo Show Us Why Architects Should Be Polymaths, Not Specialists*, <https://www.archdaily.com/889781/the-beautiful-drawings-of-michelangelo-show-us-why-architects-should-be-polymaths-not-specialists> – retrieved on 15.06.2018.

¹³ “All art is, in essence, poetry, as a consent for the arrival of the truth of existence itself. The essence of art, within which both the artwork and the artist are contained, is keeping truth within the artwork”, M. Heidegger, *O źródle dzieła sztuki*, *Sztuka i Filozofia* 5, 1992, p. 53.

¹⁴ <http://www.dezeen.com/2012/09/29/im-a-passionate-architect-i-do-not-work-for-money-peter-zumthor/Architecture> – retrieved on 15.07.2018, transl. Krzysztof Barnaś.

-
- III. 1. The Kolumba diocesan museum in Cologne, author: Zumthor P, external view, source: original photograph
 - III. 2. The Kolumba diocesan museum in Cologne, author: Zumthor P, view of the interior, source: original photograph
 - III. 3. Museum in Bregenz, Austria, author: Zumthor P, external view, source: Zumthor P., Achleitner F., *Kunsthau Bregenz, Plane, Die Konditionierung der Wahrnehmung oder Das Kunsthau Bregenz als eine Architektur der Kunst*, Gerd Hatje Verlag, 1999, p. 57



devotes all of his time to those designs, overseeing their construction, supervising how they are made down to the smallest of details. He treats every building with the utmost attention, as his own original work. He devotes a lot of attention to them, overseeing them personally. The director of the Hyatt Foundation, responsible for awarding the Pritzker Prize, Thomas J. Pritzker, described his work by saying that all of his buildings had a timeless character. He claimed that Zumthor had a rarely seen talent of combining clear and consistent thought with true poetry, the effect of which were works that would never cease to inspire. The structures designed by Zumthor appear to be something much more than buildings. He devotes a lot of attention to quality and logic. In the VALS¹⁵ thermal baths complex, Zumthor used the contrast between the adopted finishing materials to obtain an extraordinary interior ambience. The cold, grey stone cladding on the walls was set against warm bronze railings, while decorative concrete surfaces were contrasted with delicate gneiss tiles from the local quarry. The masterful use of light entering the interior through the narrow slits of the skylights also cannot be ignored. The interiors of the baths give off the impression of being “carved” out of water and light. According to Miles Lewis, an Australian architecture historian, it is the most outstanding example of the use of simple detail in order to create an extraordinary atmosphere of the place in contemporary architecture¹⁶. Zumthor highlights the sensual character of the perception of architecture. It is the architect who decides the character of individual experiences by selecting materials and proportions, choosing the illumination of the interior. The full perception of the sensations experienced inside the building and enjoying a bath is possible through all of the senses, not only that of sight. However, poetry and ambience are not everything in Zumthor’s work. He believes that the buildings that he designs meet the functional requirements of his clients and are adapted to the context of the place¹⁷. One of the most important factors that build atmosphere, both in Zumthor’s lay and religious buildings, is light. The museum

¹⁵ <https://www.architectural-review.com/buildings/thermal-baths-in-vals-switzerland-by-peter-zumthor/8616979.article> – retrieved on 14.06.2018.

¹⁶ M. Lewis, *Architectura: Elements of Architectural Style*, Hauppauge, Barrons Educational Series, N.Y. 2008.

¹⁷ “Every building is designed with a specific function, a specific place and a specific user in mind. My buildings are an attempt at giving the most precise and critical answer possible to the questions that arise from these simple considerations”, [in:] *Architektur denken*, Birkhäuser Verlag GmbH, 1999, p. 26, original translation.

Ill. 4. Museum in Bregenz, Austria, author: Zumthor P, view of the interior, source: Zumthor P., Achleitner F., *Kunsthau Bregenz, Plane, Die Konditionierung der Wahrnehmung oder Das Kunsthau Bregenz als eine Architektur der Kunst*, Gerd Hatje Verlag, 1999, p. 82

Ill. 5. Conceptual sketch of the headquarters and museum building of BMW AG, Munich, Germany, 2007, author: COOP HIMMELB(L)AU Wolf D. Prix & Partner ZT GmbH, Helmut Swiczinsky, Wolfdieter Dreiholz ZT GmbH, source: <http://www.coop-himmelblau.at/architecture/projects/bmw-welt/> – retrieved on 19.06.2018

Ill. 6. Headquarters and museum building of BMW AG, Munich, Germany, 2007, author: COOP HIMMELB(L)AU Wolf D. Prix & Partner ZT GmbH, Helmut Swiczinsky, Wolfdieter Dreiholz ZT GmbH, source: <https://centurion-magazine.com/travel/culture/europe/germany/munich-bmw-welt-museum> – retrieved on 19.06.2018



building in Bregenz is a confirmation of the architect's mastery and a significant voice in the discussion on the subject of the contemporary design of museum spaces.

The Museum of Art in Bregenz, Austria, is an example of the maximum use of daylight in an exhibition building. Doing so, the designer ensured that the maximum possible amount of sunlight can enter the museum spaces while at the same time providing optimal conditions for exhibition. Thanks to a peculiar and well thought-out strategy of lighting exhibition spaces, an effect of "shining" ceilings with a uniform lighting intensity was obtained. The rays of light enter the building and fall onto the surfaces of ceilings. The end result has the windowless interiors of museum spaces with a minimalist and reduced character with walls and floors finished with concrete illuminated by the surfaces of ceilings that feature matte glass that emits gentle, dispersed light¹⁸. Respect for the extant context, the surroundings and cultural identity is also visible in the case of the Kolumba Art Museum in Cologne. The new, highly restrained building integrates the remains of the ruins of the Gothic Church of St. Kolumba that was destroyed during the Second World War and the chapel of the *Madonna in ruins*, built in 1950 on an octagonal plan in accordance with a design by Gotfried Böhm. The facility also features archaeological digs from the 1970's. Both the form and the colour of the new structure are restrained and simple. The old and new structures are superimposed upon one another¹⁹. Special handmade bricks ordered from Denmark, with dimensions adapted to the ones originally used in the building, were used as infills for the damaged structures of the surviving walls and the building blocks of new ones²⁰. The building houses 17 galleries which differ in the proportions of spaces and appropriately selected lighting. Zumthor's religious buildings, devoid of any signs of membership to a particular religion, are the quintessence of spirituality, emanating with an atmosphere of focus and reflection, which is a result of the simplicity of forms, but also of a well thought-out selection of materials and a lack of ornamentation²¹. Peter Zumthor, when designing his buildings, uses simple materials that reflect the character and spirit of a building. The buildings of the Allmannajuvet museum, on the grounds of a zinc mine, which operated for 18 years towards the end of the nineteenth century, are cuboid structures built out of 18 mm thick

¹⁸ See ill. 3 – Museum in Bregenz, Austria, author: P. Zumthor, source: P. Zumthor, F. Achleitner, *Kunsthau Bregenz, Plane, Die Konditionierung der Wahrnehmung oder Das Kunsthau Bregenz als eine Architektur der Kunst*, Gerd Hatje Verlag, 1999, p. 55.

¹⁹ A. Hubertus, *Reduktion und Sinnlichkeit*, https://www.nzz.ch/reduktion_und_sinnlichkeit-1.558848 – retrieved on 17.06.2018.

²⁰ Bricks with a length of 54 cm and a height of only 4 cm, *ibidem*.

²¹ Bruder Klaus field chapel in Wachendorf, Germany, 2007, <https://www.archdaily.com/13358/the-therme-vals/500f245228ba0d0cc7001d3d-the-therme-vals-image> – retrieved on 14.06.2018.

Ill. 7. Vals baths, Switzerland, author: Zumthor P, view of the interior, source: <https://www.archdaily.com/13358/the-therme-vals/500f245228ba0d0cc7001d3d-the-therme-vals-image> – retrieved on 14.06.2018

Ill. 8. Bruder Klaus field chapel in Wachendorf, Germany, 2007, https://www.deutschlandfunk.de/bruder-klaus-kapelle-ein-bauwunder-in-der-eifel.886.de.html?dram:article_id=315462 – retrieved on 24.07.2018

plywood and jute cloth. The minimalist massings of the museum and the coffee shop rest on timber piles impregnated with creosote, or are fastened to high-vertical walls out of natural stone. The roofs of the buildings are covered in undulating zinc sheets. The architecture of the buildings, austere and minimalist in its expression, is the architect's tribute to the work of the miners who once worked here²².

5. Method and process of design

Zumthor has published many of his thoughts in theoretical works. Our character and personality leave a mark on everything we do, on our cognitive processes, on the analysis of what we feel and see and on the processing of all these experiences. The effect of these processes include specific guidelines for our further actions. In the case of Zumthor, the characteristics of his personality determine his creative path. He considers himself a phenomenologist. He is interested in the appearance of things, their physical attributes and qualities: their smell, touch, the sounds that they make. These are the things that preoccupy him when he begins work on designing a building. These are feelings, and thus not rational factors. The designer admitted that after finishing his work he begins an analysis of what he has created²³. Zumthor admitted that he felt associated with Martin Heidegger's way of thinking. He similarly values simplicity. The effect of design and the essence of the design process was defined by Zumthor as being oneself and conduct in accordance with one's feelings and convictions.

He expressed an opinion that design is primarily a process of ordering and understanding the reality that surrounds us²⁴. He believes that in order for a building to have the desired effect, one which is a clear and logical structure of the building, the designer should use rational and objective criteria during the process of design. According to him, the design process is based on a constant interplay between reason and feelings. All subjective feelings, tastes, yearnings and desires that appear during this process and want to become form should be subjected to a rational verification – an assessment by a critical mind. In effect, the designer can see whether their abstract deliberations are coherent or not.

Zumthor highlighted the deciding role of emotion and inspiration in the creative process. The proper substance of the architecture that is sought is created thanks to them²⁵. The essence of the design process is, as Zumthor describes it, being yourself and acting according to your feelings and convictions²⁶. He also stressed the equally important role of emotion and

²² <https://www.archdaily.com/796345/allmannajuvet-zinc-mine-museum-peter-zumthor> – retrieved on 20.07.2018.

²³ P. Zumthor, *Architektur denken*, Birkhäuser Verlag GmbH, 1999, p. 20, original translation.

²⁴ *Ibidem*, p. 20, original translation.

²⁵ “Precious moments of inspiration appear during patient work. When suddenly an internal image emerges, when we draw a new line on a drawing, for a split second it changes and forms the entire building anew. As if we suddenly felt the influence of a strong drug. Everything that I knew but a moment ago about the building being created, presents itself in a clear new light. I feel joy and excitement, as if some voice inside me says “I want to build this house!”, *ibidem*, p. 20, original translation.

²⁶ “In order to obtain beauty, I must be myself entirely, doing my own thing and nothing else, as the true substance that recognises beauty and, with a bit of luck, can create it, lies within me.”, *ibidem*, original translation.

reason in the creative process. Maintaining distance from the effects of one's work is also an essential aspect of the design process.

6. Context

The problem of context in design is not without significance to Zumthor²⁷. His architecture expresses respect for the surroundings and to cultural identity. The Vals thermal baths are a reflection of the respect for the context of the place, the local culture, history and natural conditions. The architecture that he creates is full of modesty and humility towards nature. Respect for the existing context, the surroundings and cultural identity is also visible in the case of the Kolumba Art Museum in Cologne. The new building, with an expression full of restraint, integrates within its massing the remains of a Gothic church destroyed during the Second World War and the *Madonna in ruins* chapel by Gottfried Böhm built in 1950. The materials used in it also refer to the historical context. The designer does not intend to dominate the environment. Zumthor respects the context that he encounters. The simplicity of the forms of his buildings interplays with the surroundings. They have a timeless character. It is not the forms of the buildings that he designs that are the most important. He ascribes a much greater significance to the atmosphere within them²⁸. Getting to know a building is a sort of spectacle that has been directed by the designer.

7. Conclusions

There is no possibility of separating the path of design based on rational considerations from the intuitive path. The selection and character of the method of design is associated with the personal predispositions and skills of the designer. Over the course of his creative path there occurs an evolution of his professional toolset and the employed methods of design due to personal development and the gaining of new experiences associated with cognitive processes and successive creative processes.

It is a continuous process. Every designer develops their own path and creative method during his work, one that is based on his experiences, knowledge and personality. The effect of Zumthor's creative efforts is the atmosphere of his buildings and an entire array of sensations that highlight the accuracy of the definition of architecture contained in his book *Architektur denken: Architecture has its own field of existence. It remains in an exceptionally corporeal relationship with life... it is essentially neither a message, nor a sign, but rather the stage and background of the passage of life, a sensitive vessel for the rhythm of steps touching the floor, for focus on work, for the silence of sleep.*

²⁷ "I have a passionate desire to design buildings that, as time goes by, in an obvious manner integrate themselves with the shape and history of their site", *ibidem*, p. 17, original translation.

²⁸ Kolumba diocesan museum, Cologne, author: Zumthor P. view of the interior, source: original photograph.

References

- [1] Barełkowski R., *Zapiski o procesie projektowym*, *Przestrzeń i Forma*, 12/2009.
- [2] Dickinson D., *The Beautiful Drawings of Michelangelo Show Us Why Architects Should Be Polymaths, Not Specialists*, <https://www.archdaily.com/889781/the-beautiful-drawings-of-michelangelo-show-us-why-architects-should-be-polymaths-not-specialists> - retrieved on 15.06.2018.
- [3] Heidegger M., *O źródle dzieła sztuki*, *Sztuka i Filozofia* 5, 1992.
- [4] <http://www.coop-himmelblau.at/architecture/projects/open-house/> - retrieved on 19.06.2018.
- [5] <https://www.archdaily.com/796345/allmannajuvet-zinc-mine-museum-peter-zumthor> - retrieved on 20.07.2018.
- [6] <https://www.archdaily.com/13358/the-therme-vals/500f245228ba0d0cc7001d3d-the-therme-vals-image> - retrieved on 14.06.2018.
- [7] Hubertus A., *Reduktion und Sinnlichkeit*, https://www.nzz.ch/reduktion_und_sinnlichkeit-1.558848 - retrieved on 17.06.2018.
- [8] Leonardo da Vinci, letter to Lodovico Sforza, circa 1483, <https://www.encyclopedia.com/people/literature-and-arts/european-art-1599-biographies/leonardo-da-vinci> - retrieved on 23.06.2018.
- [9] Lewis M., *Architectura: Elements of Architectural Style*, Hauppauge, Barrons Educational Series, N.Y. 2008.
- [10] Monestiroli A., *Ciągłość doświadczenia klasycznego*, [in:] *Definiowanie przestrzeni architektonicznej*, Czasopismo Techniczne, Architektura, Kraków, 2009.
- [11] Palladio A., *Cztery księgi o architekturze*, Wydawnictwo Naukowe PWN, Warszawa, 1995.
- [12] Świtek G., *Gry sztuki z architekturą: Nowoczesne powinowactwa i współczesne integracje*, Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika, Toruń, 2013.
- [13] Witruwiusz M., *O architekturze ksiąg dziesięć*, Wydawnictwo Naukowe PWN, Warszawa, 1956.
- [14] Zumthor P., Achleitner F., *Kunsthau Bregenz, Plane, Die Konditionierung der Wahrnehmung oder Das Kunsthau Bregenz als eine Architektur der Kunst*, Gerd Hatje Verlag, 1999.
- [15] Zumthor P., *Architektur denken*, Birkhäuser Verlag GmbH, 1999.