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THE AVANT-GARDE OF RATIONALISM – RADICAL IDEAS IN THE DESIGN OF DETACHED HOUSES IN POST-WAR POLAND

AWANGARDY RACJONALIZMU – RADYKALNE IDEE DOMÓW JEDNORODZINNYCH W POWOJENNEJ POLSCE

Abstract

Individual architecture of detached houses is often used for presenting avant-garde ideas of its authors. Such attitude in some cases leads to the uncompromised subordination of the building's form to a pre-determined concept and the application of clear principles to shape an architectural work in radical and rational way. Manifestations of a similar, rational way of design can also be seen in some examples of Polish post-war detached houses, architecture of which often follows the patterns of the international avant-garde movement. The aim of this article is to find and present radical forms of single-family residential architecture, created in Poland after 1945. Selected projects were presented using the case analysis method.

Keywords: avant-garde, detached house, radical form, rationalism, rationalist architecture

Streszczenie

Indywidualna architektura domów jednorodzinnych stanowi często pretekst do prezentacji awangardowych idei jej twórców. W niektórych przypadkach oznacza to bezkompromisowe podporządkowanie formy budynku z góry narzuconej koncepcji i zastosowanie czytelnej zasady do ukształtowania dzieła architektonicznego w radykalny i racjonalny sposób. Przejawy takiego projektowania można dostrzec w przykładach polskich domów jednorodzinnych, których architektura często podąża za wzorcami międzynarodowej awangardy. Celem artykułu jest próba odnalezienia i prezentacji radykalnych form architektury mieszkalnej jednorodzinnej powstałych w Polsce po 1945 roku. Wykorzystując metodę analizy przypadku zaprezentowano wybrane realizacje.

Słowa kluczowe: architektura racjonalistyczna, racjonalizm, forma radykalna, dom jednorodzinny, awangarda

*The simplicity of forms serves to recognize
the complexity of what they represent,
to recognize their identity, to recognize ourselves.¹*

Antonio Monestiroli

1. INTRODUCTION

Assessment and description of tension between the boundless expression of architecture on one side and its pragmatic rationality on the other side can be a way of description and characterization of architecture. Rationality is a way of designing that allows to create buildings in a reasonable way, in response to specific needs of its future users. The rationality of architecture understood in this way can be treated as an equivalent of Vitruvian *utility*. However, in some, special cases, the pragmatic rationality and functionality of proposed solutions deliberately can be compromised by the need to shape a building according to some predetermined rules and self-imposed ideas of an architect. When such rational assumptions constitute the starting point for the consistent shaping of building forms, it can be called rationalistic architecture. This particular approach to shaping architectural form can be observed in some examples of single-family houses designed by Polish architects. The projects they created, due to their relatively small scale, often clearly convey the expressive and avant-garde ideas of their creators.

2. HOUSES

Manifestations of such an avant-garde approach to create the form of a detached house using a rational principle can be seen in Polish architecture since the 1960s. One of them is Witold Lipiński's futuristic private house in Wrocław which has been completed in 1964. It was later described by Filip Springer as one of the most original single-family houses built in post-war Poland². The shape of that house was influenced by the inventive and research approach of the architect to design of new constructions, as well as by fascination with the progressive exploration of outer space, very typical to the 1960s. The same references are also clearly visible in the most famous and well-known project created by Lipiński – the building of a mountain shelter on Mount Śnieżka. The architect's house in Wrocław was shaped as a dome of ten meters diameter, and was built of brick laid by the designer himself³. Inside, the architect placed his own studio on a mezzanine which had a partially transparent floor, what at that time was a very impressive solution. The characteristic form of that building and the radial arrangement of its internal rooms were determined by the construction principle applied. The unity between the structure, construction methods and

¹ A. Monestiroli, *Lo stupore delle cose elementari*, Ogni Uomo è Tutti Gli Uomini, Bologna 2007.

² F. Springer, *Żle urodzone. Reportaże o architekturze PRL-u*, Wydawnictwo Karakter, Kraków 2012, p. 16.

³ Z. Napieralska, *Eksperymentalne domy jednorodzinne lat 60' i 70' XX wieku w Polsce* [in:] Teka Komisji Architektury, Urbanistyki i Studiów Krajobrazowych, nr 3, Wrocław 2015.

the resulting form, obtained in this way, is one of the determinants of rational architecture. The homogeneity of the interior plan with the defined form of that building and a clear design principle allows the “Igloo” in Wrocław to be placed in the collection of Polish avant-garde houses with rational assumptions. Despite even complete resignation from the use of the right angle and orthogonal forms, usually characteristic for rational designs, that house can be defined as an example of rationalist architecture.

Another example, the Jan Szpakowicz’s own house is also an avant-garde illustration of a building subordinated to a radically rational idea. Jan Szpakowicz is an architect who developed a characteristic and consistent design method based on the use of an orthogonal grid of repetitive modules. Łukasz Wojciechowski, who is a researcher of Szpakowicz’s architecture, distinguished three principles that this architect followed during his career. These principles are: “modular structures, open spatial systems and close relationship between architecture and its surroundings”⁴. These assumptions and in particular the first of them, determine the avant-garde form of Szpakowicz’s own house, which was also in a way a spatial manifesto of his approach to architecture design. The building was built in 1971 on a forest parcel in Zalesie Dolne⁵, just like in the case of Witold Lipiński’s house, by the designer himself. The structure of that building is characterized by uncompromising discipline and absolute compliance with the used module. A regular grid is here not only a way to rationally divide the space, but also an integral part of the creation of an architectural work. It is treated with the same attention and accuracy as other building elements. The shape of each part of the building is directly caused by mathematical precision, and the formal principle used exceeds the limits of pragmatic solutions and even convenience of use. A similar property of rationalist architecture was noticed by Charles Jencks when he used the term *irrational grid* in reference to the works of Peter Eisenman⁶. Jan Szpakowicz used nine identical, square rooms to arrange the inner space of the house. Each of them was 2.4 by 2.4 meters⁷. Basic and defined functions, which include three bedrooms, bathroom, wardrobes, kitchen and a storage space, were located inside modular “cubes”. They were carefully placed on a regular grid. Four monolithic ceilings in the shape of same width rectangular slabs, placed on three different levels, were supported on them. In between of independent modules the architect designed a space with the function of a living room and a dining room, limited by large, partially movable glazing. The floor plan of that one-story building shows the consequences and the strict modular rigor of forming its structure in the best way. Jan Szpakowicz’s private house, in terms of its strictly rational architectural structure, still has no counterpart in other Polish projects⁸.

The design idea underlying rational architecture does not need to be limited to the creation of completely new, independent buildings. In the following examples, it takes the form of adaptation or extension of existing structures, without losing its conceptual purity at all. The first example is the so-called *Bolko Loft* – the house of an architect Przemio Łukasik,

⁴ Ł. Wojciechowski, A. Czupkiewicz, *Jan Szpakowicz. Przestrzeń Elementarna*, Muzeum Architektury we Wrocławiu, Wrocław 2021, p. 7.

⁵ Zalesie Dolne is now a part of Piaseczno near Warsaw.

⁶ Ch. Jencks, *Late-modern architecture and other essays*, Academy Editions, London 1980, pp. 56–57.

⁷ Ł. Wojciechowski, A. Czupkiewicz, *op. cit.*, p. 63.

⁸ The unique architectural value of Jan Szpakowicz’s house did not protect it from being demolished in 2013.

created in 2003 by adapting an abandoned industrial lamp warehouse near a closed zinc and lead mine in Bytom⁹. The uniqueness of that project is demonstrated not only by use of post-industrial architecture for residential purposes, but in particular by a form of the building which originated entirely from the adapted structure. *Bolko Loft* is a house arranged in a concrete, single-space warehouse building raised above the ground and supported by eight meters reinforced concrete pillars. The characteristic shape of that building may lead to a suggestion that the architect, by choosing lifted, old industrial building for his house, subconsciously referenced to a kind of post-industrial interpretation of Le Corbusier's *Villa Savoye*. The distant similarity of those two structures is based on intuitive use of an elementary structure of the Domino System, the structure of pillars and ceilings supplemented with a free plan and an independent staircase. However, the author explains his choice with more pragmatic reasons and a passion for the industrial identity of the Silesian region¹⁰. Regardless of the author's actual intentions, the house represents an example of architectural rationalism expressed by the radical idea of changing the mine lamp room into a living space. In order to preserve the industrial character of the building, external interventions were limited to cleaning its structure and adding a new staircase. Due to this approach, the pragmatic rationality of the former industrial architecture is still visible. In the visual layer it has been intentionally preserved from the times of the mine's operation. In the new residential function, however, it loses its original, functional justification and becomes a consciously adopted idea that strengthens the rational expression of the entire project. The avant-garde importance of *Bolko Loft* for Polish architecture is also evidenced by a number of different meanings comprised in that seemingly simple building. The search for beauty in an industrial structure, which is by definition devoid of aesthetics as well as deliberate expression, brings to mind examples of vernacular pole architecture described in Bernard Rudowski's book *Architecture Without Architects*¹¹, or even refers to Marc-Antoine Laugier's rational concept of the *primitive hut*.

The second house, which was created by supplementing an existing structure, is the *Keret House*. It was named after the Israeli writer Etgar Keret, who was its first resident and patron of the entire project. The building is commonly called the narrowest house in the world¹² due to the width of the plot on which it has been built. The maximal width of that structure is 152 cm, and at its narrowest point even less than one meter. The house was completed in 2012 and was designed by an architect Jakub Szczęsny. The form of that house has been imposed by the shape of the narrow space in which it has been located. Although the Keret House is actually a kind of art installation, it contains a full functional program necessary for living and work requirements of one user¹³. The main idea of that architectural intervention was to fill the void, a narrow gap between the two existing buildings in Warsaw, situated in district of Wola. The buildings between which the house has been located were created in various historical and spatial contexts, and their random proximity is characteristic for the

⁹ A. Rasmus-Zgorzelska, A. Stępnikowska (eds.), *Na przykład. Nowy dom polski / For Example. New Polish house*, Centrum Architektury, Warszawa 2013, p. 22.

¹⁰ *Ibidem*.

¹¹ B. Rudowsky, *Architecture Without Architects*, Museum of Modern Art, New York 1964, pp. 107–109.

¹² House presentation on the Archdaily, see: K. Rosenfield, *Inside the Keret House – The World's Skinniest House – by Jakub Szczęsny*, www.archdaily.com/289630/inside-the-keret-house-the-worlds-skinniest-house-by-jakub-szczesny (access: 18.06.2022).

¹³ J. Szczęsny, *Miniaturowe znaczy możliwe*. Architekt Jakub Szczęsny o projekcie, www.domkereta.pl/Miniaturowe-znaczy-mozliwe-Architekt-Jakub-Szczesny-o-projekcie, (access: 18.06.2022).

contemporary urban fabric of the Polish capital. The author of *The Keret House* has used the chaos and diversity of Warsaw's space as a reason for its existence, while at the same time he has tried to make a connection and a "binder" between elements of heterogeneous tissue of the city. The radical nature of that project includes maximal reduction of the house's space forced by its specific location. The author has also intended to broaden the concept of creating impossible architecture¹⁴, so his action in this case has the character of achieving utopia, as it can be often found in avant-garde projects. The rationalism of *the Keret House* manifests itself both in the deliberate reduction of its form and in the consequent reduction of its function. The dogmatic, overriding principle of limiting the means of expression is particularly evident here.

Another architectural project – a house with an artistic studio designed in 2010 by Piotr Brzoza and Marcin Kwietowicz, in cooperation with Grażyna Czarnota, is also an example of designing activity consisting of adjusting a new building to the previously existing buildings in the neighbourhood. The final shape of that project was certainly influenced by ideas and art activities of its investor – sculptor and visual artist Monika Sosnowska. Sosnowska in her works deals with topics closely related to the issue of imperfect space and architecture. Art curator and researcher Zofia Czartoryska writes about the artist's achievements: "Her exhibitions change a gallery into a laboratory where spatial disorders are tested. She is interested in elements of architecture marked by error [...]"¹⁵. The sculptor's work corresponds to the design idea used by the designers of her house. The architects took inspiration for their design directly from the degraded surroundings of the investment area, as well as from the chaotic and spontaneously shaped development of Horodelska Street in Warsaw¹⁶. The neighbourhood of Monika Sosnowska's house has no traces of purposeful aesthetics, as in the case of the *Bolko Loft* house. It is hardly possible to find organized aesthetics in wastelands adjacent to the plot, abandoned buildings or even in a nearby landfill metal site. In these circumstances, the radical expression of the fragmented building was achieved by the maximum reduction of the ways of expression. All walls were covered with grey, monotonous plaster, and no architectural details were used. The front elevation of the building is a grey solid wall that separates the house's private space from the chaos of its surroundings. In this case, it is not the quality of the materials used, but the rational structure of the building itself that expresses in the strongest way its architectural and aesthetic value. The architects resigned from the commonly used idea of typical free-standing building located in the middle of an undeveloped plot. Instead, they used the existing gable walls of the neighbouring buildings to locate the new volumes of the designed building directly at the plot boundary. As a result of this decision, the house was divided into four separate, one-story buildings arranged irregularly around the perimeter of the investing area. The main owners' flat, sculpture studio, garage and guest flat were designed in independent pavilions. Such division of the house into separate blocks according to their function allowed for the creation of undeveloped courtyards between them. These spaces were turned into gardens modelled on the vegetation of nearby unmaintained areas. In this case the courtyard serves as an additional external space included

¹⁴ *Ibidem*.

¹⁵ Z. Czartoryska, *Po cichu i z hukiem. Architektoniczne porażki w sztuce Moniki Sosnowskiej i Cypriena Gaillarda*, "Rzut", 2015, nr 6, <https://www.kwartalnikrzut.pl/po-cichu-i-z-hukiem-architektoniczne-porazki-w-sztuce-moniki-sosnowskiej-i-cypriena/?v=9b7d173b068d> (access: 18.06.2022).

¹⁶ P. Kraus, *The Polish house. Contemporary history*, [in:] A. Rasmus-Zgorzelska, A. Stępnikowska (eds.), *op. cit.*, pp. 102–105.

in the utility programme of the house. Ultimately, the artist's house takes its form of both the cubature of independent pavilions and the remaining plot area limited by the boundary wall. The positive and negative space has been designed and used in an exactly equal way. In 2012, the house design received an award in the seventh edition of the nationwide competition *Life in Architecture*, in the category of the best single-family building built in 2000–2012¹⁷.

The private house of an architect Robert Konieczny is also an example of avant-garde radical and rational design. A concrete building situated on a mountain slope in Brenna is sometimes called the “Ark” due to its characteristic, undercut form. The architect adjusted a shape of the house to the terrain conditions of the plot and the local planning regulations. In order to limit interference with the unsteady mountain ground, the building was founded on three foundation walls located parallel to the direction of local surface water run-off. The use of a sloping, gable roof was forced by the local spatial development plan. These pragmatic and legal conditions became reasons and a starting point for shaping a compact, expressive form of a concrete ark. The architect referred to the sloping roof in the substructure underneath the building. As a result, he has achieved an uncompromising form of a compact house. The material used, which is a carefully applied architectural concrete, plays a key role in the design. A concrete shell insulated from the inside protects the occupants of the house from the demanding weather conditions of the mountain region. Concrete was chosen for its durability and the specific requirements of the Ark's unusual construction¹⁸. The load-bearing structure made of it is also the external, visible finish of the building walls. The uniform concrete facades give the building an unmistakably contemporary expression and contrast the body of the house from the grassy hillside background. The architect decided to use concrete, consciously resigning from other materials – the aesthetic dimension of the work was reduced by choosing a raw, neutral in the expression “synthetic stone”. The radical simplicity of the house is a feature that proves the rationalist expression of its architectural design. This aspect of Robert Konieczny's building is pointed out by Marcin Charciarek, who wrote: “In the architecture of the Ark, the unification and simplification of shape and matter become a goal for which reduction is understood as a function of the simplest solution”¹⁹. Reducing the means of expression to a minimum is also evidence of a discipline and primacy of the architect's pragmatic approach over the design. It is also an action that reinforces the elementary expression of the house.

Rationalist trends in the design of single-family houses are clearly visible in the architecture created by the Jójko Nawrocki Architekci studio. The completed projects of the *House near Warsaw* built in 2015 and the *House in Będzin* from 2017 seem to confirm this thesis. The first of these buildings was designed on the plan of a symmetric Greek cross. The architects justified this procedure by deliberately extending the perimeter of the building's ground floor, in order to extend the edge of its contact with the forest overgrowing the plot²⁰. On the ground floor there is an entrance area, garage, kitchen with dining room, living room, small bathroom and two single bedrooms. On the first floor, the master bedroom is located at the intersection of the two wings of the house. The idea of the design is entirely based on rational

¹⁷ *Dom z pracownią artystów*, www.architektura.muratorplus.pl/zycie-w-architekturze/2012/dom-z-pracownia-artystow/5/ (access: 22.06.2022).

¹⁸ A. Rasmus-Zgorzelska, A. Stępnikowska (red.), *op. cit.*, p. 90.

¹⁹ M. Charciarek, *Formy, detale i współczesne znaczenia polskiej architektury betonowej*, [in:] *eadem* (ed.), *Detale Architektury Betonowej*, Stowarzyszenie Producentów Cementu, Cracow 2018, p. 11.

²⁰ House presentation on the authors' website: www.jna.com.pl/dom-pod-warszawą/ (access: 22.06.2022).

assumptions of the geometric shaping of the space, and the clear functional division creates an impression of a harmonious order. Created from solid, elementary blocks, the form of the house is a contemporary interpretation of a building with a central plan. This leads to an object with a simple shape that is consistent with its structure. Thanks to the central symmetry of the house, all four elevations take the same shape, differing only in the location of the openings. The exterior walls of the building were covered with larch cladding referring to the forest surroundings, which further unified the appearance of the entire house. In this project, we are once again dealing with a conscious reduction of its form and means of expression, so characteristic of radically rational projects.

Another project created by the same studio, the *House in Będzin*, is characterized by an even more uncompromised level of simplification and purity of its form. It is a single-storey building designed on a square plan divided symmetrically into four equal parts, each of which has a different function. They feature a living area with kitchen and lounge, a garage and entrance area, a private bedroom area and an outdoor terrace. The final design was influenced by its investor's limited budget, which necessitated a search for cheap, practical architectural solutions. The house became a kind of avant-garde laboratory where the transfer of solutions well known from industrial buildings to a small scale of a detached house was successfully explored. This way of experimental approach is reminiscent of the work of Bohdan Lachert, a leading Polish representative of the 20th-century technical architectural avant-garde. In the design of his own Warsaw house²¹, this architect used innovative in that time material solutions²², such as blocks and prefabricated elements made of celolite²³. In the case of the *House in Będzin*, the architects decided on use of well proven in practice and tested material. The walls of the house were built of concrete blocks of several sizes, which were also used for finishing the facades of the building. This solution is analogous to the facade finish of *Cube House* in Ithaca, designed in 2000 by Simon Ungers. The flat roof of the Będzin house, covered with extensive vegetation, is supported by prefabricated concrete hollow core slabs, left unfinished on the interior side of the building. The raised floor construction also uses precast prestressed concrete channel sections²⁴. The roughness of the industrial materials is broken only by finishing the interior with natural wood flooring. Thanks to the decisions applied in the design of the *House in Będzin*, the rationality of the choices is combined at every step with a thoughtful elementary simplicity of form. The rational expression of the house was summed up by Marcin Charciarek with the following words: "This kind of architecture exemplifying 'silent form' is also a reference to this perception of the pattern of ascetic composition that comes from the principles of purely minimalist and economic thinking"²⁵. The growing popularity of a rational approach to domestic architecture is evidenced by the fact that the *House in Będzin* won the main prize in the "Life in Architecture" competition, in the category of the best single-family building completed in Poland between 2015 and 2019.

²¹ Bohdan Lachert's private house was built at the beginning of 1929 at 9 Katowicka Street in Warsaw.

²² K. Uchowicz, *Awers/rewers. Architekt Bohdan Lachert*, Muzeum Architektury we Wrocławiu, Wrocław 2018, p. 171.

²³ Celolite is a type of foam concrete patented in 1925 by Christian Nielsen in Denmark.

²⁴ M. Charciarek, *Detale Architektury Betonowej 2*, Stowarzyszenie Producentów Cementu, Cracow 2021, p. 42.

²⁵ Eadem, *Świadomość materii – sens formy w polskiej architekturze betonowej* [in:] eadem (ed.), *Detale Architektury Betonowej 2*, Stowarzyszenie Producentów Cementu, Kraków 2021, p. 6.

3. CONCLUSION

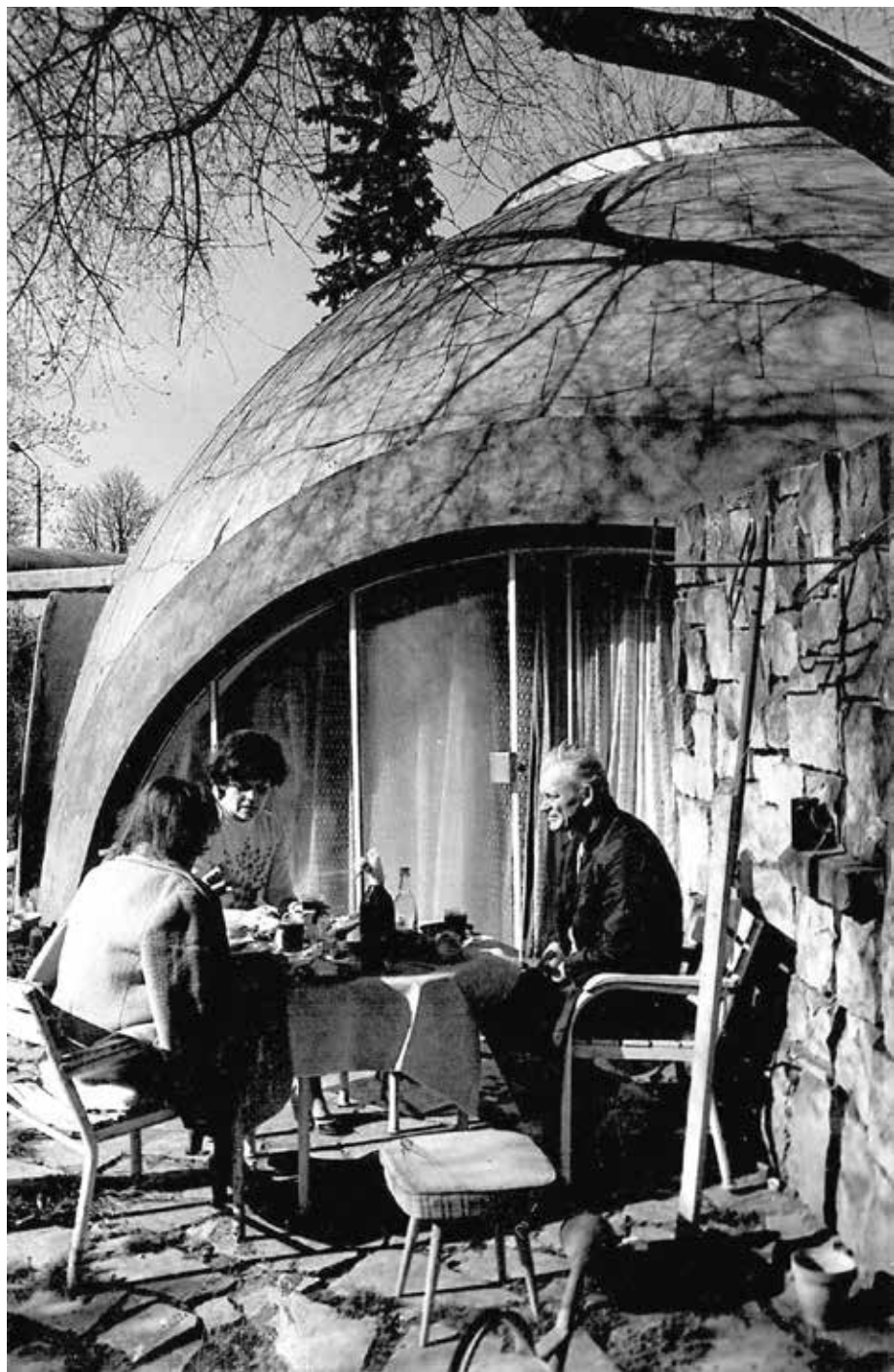
The elements of rational architecture and rationalist aesthetics, which can be seen in the designs of post-war Polish detached houses prove that rational ideas have not lost their relevance and have been a source of quality architectural creation over the years. The house designs that explore and reflect them, due to their radical and expressive message, gain recognition from the architectural community and increasingly often win prizes and awards in industry competitions. Their currently growing popularity, however, does not weaken the strength of their avant-garde assumptions. One of the contemporary creators, who uses the language of rationalistic architecture in his work effectively, an Italian architect Antonio Monestiroli, while describing his projects in one of his lectures, claimed that:

In the design of a house, even more than in the design of a building intended for public institution, meaning depends on the form of the place. A house can be limited to a single room; what really matters is the encounter with the environment, the place with which it forms relationships [...].²⁶

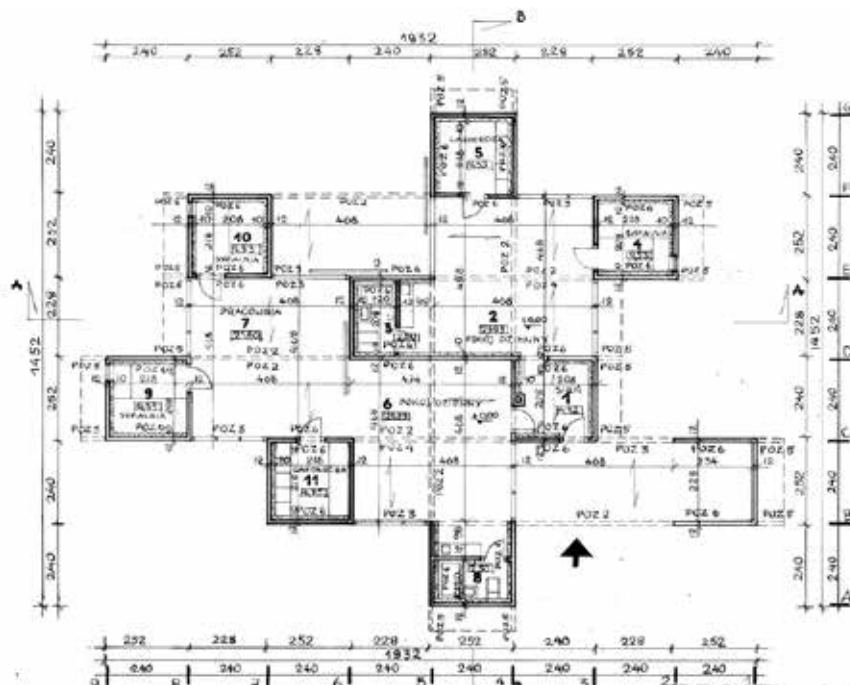
This sentence also fits well with each of the houses described in this article, regardless of a fact if their surroundings are chaotic assembled buildings of a capital city, a post-industrial mine site or a pasture or a natural forest. The above-described facts are an evidence of the high architectural sensitivity of the authors of their designs. The presented examples of houses show that the avant-garde design does not have to be ahead of its time, forging a new path and chasing the undefined architecture of the future. The radical nature of the analysed buildings found its source in completely different assumptions. The main common point of all described projects is the use of strong, uncompromised and thoroughly rational ideas contained in their designs. In this sense, these buildings represent, in comparison with other contemporary projects, a kind of avant-garde expressed in a radical concept. Their rational architecture can be summarized by Charles Jencks' observation: "Rationalist architecture makes a virtue out of the reduction of forms into the expression of one dogmatically followed, persuasive idea"²⁷.

²⁶ A. Monestiroli, *Tryglif i Metopa. Dziewięć wykładów o architekturze*, Wydawnictwo Politechniki Krakowskiej, Kraków 2008, p. 129.

²⁷ Ch. Jencks, *op. cit.*, p. 130.



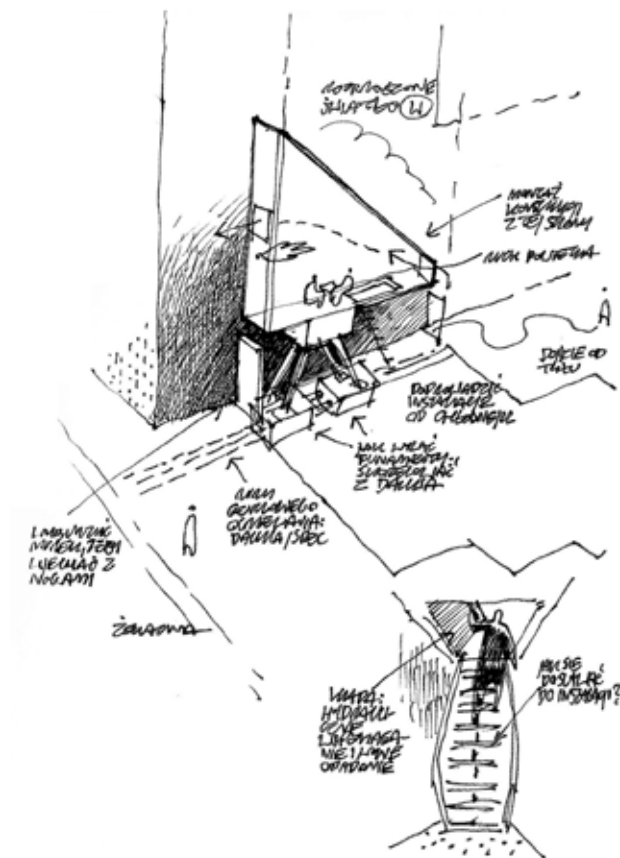
III. 1. House of Witold Lipiński in Wrocław, source: Lipiński family archive, after www.architektura.muratorplus.pl.



III. 2. The floor plan of Jan Szpakowicz's house in Zalesie Dolne, source: technical documentation of the project, after: Ł. Wojciechowski, A. Czupkiewicz, *Jan Szpakowicz. Przestrzeń Elementarna*, Museum of Architecture in Wrocław, Wrocław 2021.



III. 3. House in Będzin by Jójko + Nawrocki Architekci studio, photo by Michał Jędrzejowski, source: M. Charciarek (ed.), *Detale Architektury Betonowej 2*, Stowarzyszenie Producentów Cementu, Kraków 2021.



Ill. 4. Conceptual sketch of the *Keret's House*, author: Jakub Szczepny, source: www.szcz.com.pl.



Ill. 5. Robert Konieczny's *Ark*, general view, photo by Jakub Certowicz, source: www.archdaily.com.

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