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## Creative construction and simplicity of form

Nina Juzwa<sup>a</sup>, Jakub Świerzawski<sup>b\*</sup>

<sup>a</sup>*Prof. D.Sc. Ph.D. Arch., Faculty Of Civil Engineering, Architecture And Environmental Engineering, Lodz University of Technology, aleja Politechniki 6, 90-924 Łódź*

<sup>b</sup>*Ph.D. Arch., Faculty of Architecture, Civil Engineering and Applied Arts, Katowice School of Technology, Rolna 43, 40-555 Katowice, Poland*

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### Abstract

An Architect designing a form has to take many factors into account. Some are mainly pragmatic and rational in nature. They correspond with the needs and restrictions determined by the user, site or function to name a few. Other factors are subjective to the designer, his/her talent and creativity.

One of many tendencies in contemporary architecture is designing buildings that look surprising and innovative. Their complex geometries are usually showing the prestige and the use of modern techniques and technologies.

In architecture the relationship between pragmatism, creativity, prestige and astonishment can be seen in buildings which are simple and solid blocks. The feeling of surprise is hidden in the internal structure. The outer form is designed in a pragmatic way while the interior form is different and stunning to the observer. This structure may serve a functional purpose, but the way it is composed into the whole is unexpected. It is this creative construction that underlines the importance and prestige of the object. The relationship between these two structures drives the innovative character of the design.

The skill of intuitively explaining a concept becomes essential in the early stage of creating a project, when an idea becomes explicit. A sketch depicting the design concept leading to the materialization of a building shows the architect's talent. The article examines case studies of objects built in recent years in Poland and in the world, in which such a relationship can be seen. The aim is to show the designers' motivation, the way of designing and realizing such buildings. This approach allows to outline, how creativity influences the design.

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### 1. The idea in architecture

The article discusses the simplicity of architectural form and creative construction solutions. Such solutions are associated with innovation in architecture and can be found in various forms. Usually, they are buildings whose form depart the principles of right – angle geometry. The attempt to define this phenomenon shows the intensification of expressionist tendencies, as well as the emergence of new possibilities in modern design technologies and techniques. Observing contemporary iconic experiments in architecture and focusing the research on spatial harmony, the article follows up Nina Juzwa's research on the origin of spatial form presented in Cracow, Poland in November 2018 [1]. It also aims at the appreciation of architectural beauty in the discussed cases.

Many interesting objects were built in Poland in the last years. Our goal is to show these architectural events in the context of global trends in public utility architecture. As it is necessary in such situations, the choice of examples is subjective.

\*Corresponding author: Jakub Świerzawski, PhD email: [jakub.swierzawski@wst.com.pl](mailto:jakub.swierzawski@wst.com.pl)

According to Vitruvius, a thought or an idea is the basis of an architectural design, but still is not architecture itself [2]. During the design process, the architect's idea is transformed by drawings and models. These are vital to the final execution of the concept. The form, beauty and functionality of a building is affected by a large group of people: architects, urban planners, developers, constructors, etc. Nowadays, mixed-use objects like city centres, malls, town districts, research facilities and cultural centres are built with increasing complexity. This in turn requires more and more complementary skilled specialists, changing architecture into a team endeavour. Furthermore, architecture can only exist when there's a need and business plan for it, "buildings are, after all, a business"[3].

Architecture is driven by pragmatic factors, like economics, complexity and the number of people needed to build an object. Despite its cultural significance, this makes architecture seemingly slightly less of an artistic undertaking than traditionally 'higher arts', such as painting, photography, or sculpture. Comfort and utility are the most important requirements of the facility user, so functional and technical conditions must be met. When they are fulfilled, the material quality, spatial form envisioned by the authors can contribute to the cultural dimension of an urban complex or building. In fashion, a distinction is made between everyday items (*cotidienne*) and rarely purchased, but trend-determining patterns (*haut couture*). Similarly, we can talk about architecture which, having the features of formal uncommonness, creates a new, surprising quality of the space. In literature there is a term *Gesamtkunstwerk* which describes a piece that is perfect both in its entirety and details. We use this term when talking about some amazing objects.

## 2. A discussion over architecture

During the international debate in the London Royal Academy organised by Charles Jencks in 1997, the term 'ecstatic' architecture was coined to reflect emotions and expressions in modern architecture. The term was inspired by the 17th century sculpture, *The Ecstasy of St. Theresa* by Lorenzo Bernini, that can be seen in Santa Maria della Vittoria church in Rome. It is the symbol of movement and dematerialisation of form in art. Nail Leach, an architect and theorist, points out the irony of this metaphor in which a sculpture, not a building created by one of the eminent Baroque designers, has been so enormously and timelessly appreciated. Dematerialisation of form and the impression of movement can also be found in architecture, for example in the early expressionism of modernism, as well as in many contemporary works. Current designs move toward litheness and transience of the form and to associations/relations with biotechnology and computer sciences. The debate concluded in the statement that the ecstatic form astonishes, almost shocks at the first encounter with architectural innovation [4].

In the age of social media and instant global communication, visibility of architectural objects directly influences their profitability. Tom Dyckhoff calls them *Wowhouses*, products of capitalism and its tendency to reward individualism and competition [3]. According to their initiators, prestigious objects trigger urban change. Also, architecture can be part of the institution branding strategy. Usually, the best known buildings stand out of their context; the viewer is surprised and intrigued before entering the building. Frank Gehry is well known for this approach, as the example of the flowing geometry of the Guggenheim Museum in Bilbao shows. Local regulations can put constraints on the architects' desire to surprise, which requires different solutions. This can be seen in two of his projects in Berlin, where the curvilinear geometry is hidden inside a box-shaped building. In the case of the DZ Bank headquarters, the uniqueness of a rectangular and elegant building is largely determined by its internal sculpture-like structure. The project of the concert hall Pierre – Boulez – Saal has an elliptical stage and seating area set inside a rectangular, historical building. The intent was to create an intimate space for musicians and listeners alike [5]. These examples do not repeat the traditionally expected patterns, instead they provide innovation. Similarly, the viewer's astonishment evoked by architectural ideas is also seen in case of the buildings by Japanese architects: the Rolex Learning Centre in Lausanne by Saana (2004) in which the smoothness of interior and the lack of zones are enhanced by the liquidity of the ceiling lines, or the building of the Media Library in Sandai, Japan by Toyo Ito & Associates. The building, in the form of a cuboidal glazed seven-storey-high box, has smooth transitions between floors. This impression is created by seaweed-like columns which allow visual connections between the levels [1].

### 3. Creative construction and simplicity of form – case studies in Poland



Fig. 1, Warsaw, the exterior and interior of the Museum of History of Polish Jews by Rainer Mahlamäki and Ilmari Lahdelma. Collage of photos by Adrian Grycuk, CC3, wikimedia commons

Form dematerialization frequently becomes the autonomic element of the very pragmatically shaped architectural structure of an object. A glimpse at the architecture of recent years reveals how special attention is paid to buildings which externally are solid, simple blocks, while their interiors are surprisingly innovative. The examples from Warsaw and Katowice are perfect illustration of this relationship.

Warsaw is a city of difficult and rich history more than often resulting in challenging urban and architectural situations. **The Museum of the History of Polish Jews – POLIN** designed by Rainer Mahlamäki and Ilmari Lahdelma (2013) is situated in Muranów, one of the districts of the city of Warsaw located in the close vicinity to the monument to the Warsaw Ghetto. The idea of the Museum is not only to commemorate the Holocaust. Its function is twofold – firstly, to teach how Jews contributed to the history of Poland, and secondly, to be a centre of culture and education. In 2005, Lahdelma & Mahlamäki from Finland won the contest for the building design.

From the outside, the building resembles a glass case full of Torah books. The panels creating the cover have the word POLIN written on them. The structure, designed pragmatically on a square floor plan, fully reveals its astonishing beauty only upon entering inside. The museum consists of 4 above-ground floors and 2 underground ones. Thanks to the geometrical simplicity and its height, it harmoniously blends into the surrounding of a post-war housing estate. It contains a hidden symbolism in the details of the architectural concept, which is aggressive neither to passers-by nor visitors.

The keystone of the interior space is a high entry hall. The whole architectural dramatism of the interior is hidden there. The building is torn in half across its dimensions to symbolize the history of Jews which may be interpreted in two ways: either as the crossing of the Red Sea or as the break of the history of Polish Jews during the Holocaust. Inside the building, it creates a high undulating passage layered with shotcrete. The gorge ends with the light which drips out of glass tiles enhancing the drama of the interior. The building, concise in form, creates sublime mood inside, which also enables the reflexion upon the passing of time. What makes the building memorable, is its simplicity and conciseness [1].

The city of Katowice is the capital of the former largest industrial region in Poland, currently in the period of economic and spatial transformation. Near the Silesian University and the famous Spodek (built in 1971), on the premises of a former coal mine a cultural zone was established. The goal of this huge investment is to enhance and complement the cultural offer of Katowice, as well as to change the image of the post-industrial city. Following a number of international architectural competitions, three objects were built: the seat of the Polish National Radio Symphony

Orchestra, the International Congress Centre and the Silesian Museum. The first two are perfect embodiments of the aforementioned design approach.

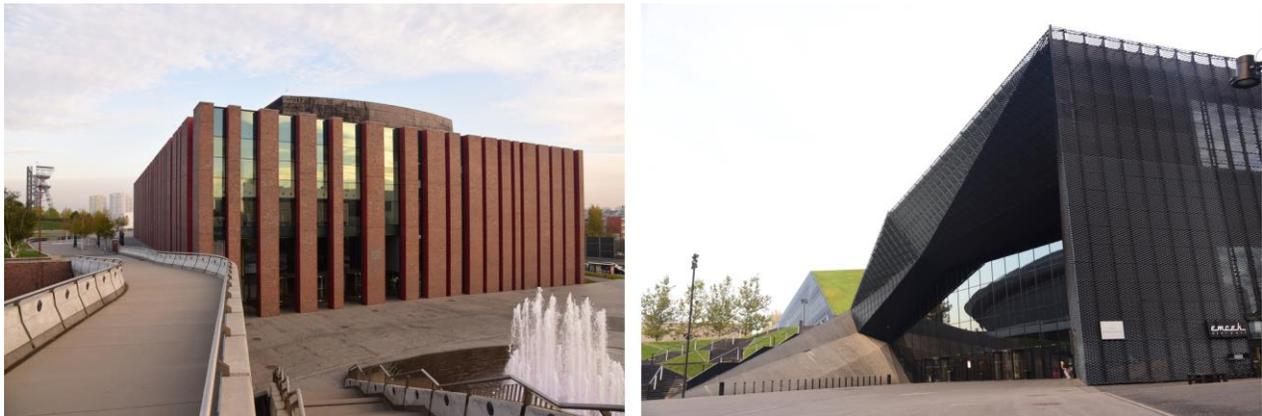


Fig. 2, Katowice, on the left the seat of the Polish National Radio Symphony Orchestra by Konior Studio, on the right the International Congress Centre by JEMS architects. Collage of photos by Dominika Zieleźnik (used with kind permission).

The seat of the **Polish National Radio Symphony Orchestra** was designed by Tomasz Konior in 2008. It is located on the former coal mine wood storage place. From the outside the building is a simple, regular block. With no references to classical architecture, the elevations consist of glass gaps and vertical brick pylons arranged in an irregular rhythm. The bricks are in different shades of red.

The building structure is based on a *box inside a box* logic, where the inner box contains the large concert hall. Even though this box is higher, it is only slightly visible from the outside, just hinting of its role. The concentric concept is seen in the floor plan, where the accompanying rooms are grouped along the outer walls, around the centrally located concert hall. In the outer ring, a second, smaller concert hall is located. From the white foyer one can enter the large concert hall. Looking from the hallway, the concert hall is an autonomous building element made of black concrete. The contrast between the smooth, white walls of the foyer and the dramatic and raw concert hall is, next to extraordinary acoustics, one of the key to the beauty of the building.

Both the small (seating 300 people) and the big (1 800 people) concert halls are finished in wood. The layout of the big concert hall resembles that of Hans Scharoun's Philharmonic Hall in Berlin. The scene is surrounded by the audience from all sides. Curved surfaces of the interior emphasize the oval drawing of the plan, creating the impression of sitting inside a musical instrument, fully immersed in the spectacle. The compact vineyard layout designed by the architect and acoustician (Nagata Acoustics) offers a great concert experience, both acoustic and visual [6].

The second building of Katowice cultural zone described in this article is the **International Congress Centre**, designed by the Polish architecture studio JEMS in 2008 and opened in 2015. The building is located next to the Spodek event hall, the icon of the city, and connected to it via a tunnel.

The Congress Centre serves many purposes like conferences, exhibitions, fairs and concerts. It looks like an enormous black box that has been cut through. The architects describe their design in the following way: "The rectangular structure is intersected by a *canyon* linking the entrance courtyard facing the Spodek arena with the historic route to the settlement of Bogucice. Cutting through a series of repeatable structural patterns, freely running public walkways are an idea which is also developed in our other landscape-scale designs [...]" [7]. The characteristic *canyon* is a public space filled with green areas and offers surprising viewpoints that allow the observation of the surroundings. It also breaks visually the large scale of the 37 902 square meters object.

The green *canyon* has a complex geometry and contrasts with the black rectangular form of the Congress Centre. This form looks solid thanks to the elevations covered with a black metal net. The net is also used inside, where the canyon is visible in the form of a bent vault in the entrance hall. The dark finishing evokes feelings of being in underground

corridors of a coal mine. The Architects have managed to achieve a difficult effect – the creation of a distinctive, surprising and original object that does not overwhelm the architectural icons in its vicinity and which fits in with the local traditions of 'black Silesia' [8].

#### 4. The origin of architectural form

In his analysis of western architectural theories, Mark Gelernter distinguishes five main trends, five concepts making up the basis for organizing debates about architectural form, and these are as follows[1, 9]:

- Functional requirements shape the architectural form of the designed object. According to this idea, the form serves the needs of an investor/user. It is the result of analyses and explorations related to the project requirements, legislative constraints, and location requirements. Examples include stadiums and concert halls, where visibility and good acoustics are usually the basic differentiator for seeking formal solutions. Nevertheless, some objects differ in form, despite being built in a similar period of time and location.
- Creativity drives the design of the architectural form. The design which arises as a result of explorations is the effect of feelings and intuition of the architect. The historians of architecture have pointed that certain architects represent notably greater creativity and abilities of formal shaping.
- The Spirit of the Age as the main influence of the architectural forms. According to this concept it is not important how far the artistic creation of a designer goes. They share the ideas and opinions expressed by the society and environment they live and work in. No matter what the individual opinions of a designer are, he/she always depends on tendencies and images of architectural form. Mark Gelernter recalls the building of Bauhaus in Dessau (W. Gropius, 1926) and the palace of the viceroy in New Delhi, India (Sir E. Lutyens, 1911–1931), both created in the same period of time.
- Social and economic conditions as the main factor of shaping architectural form. Analogously to the Spirit of Age theory, local conditions determine architectural concepts, influence formal solutions and determine the actions of the architect. If, however, as in the above case, they come from a desire to change the traditional way of thinking and aim at introducing new formal solutions changing the existing paradigm, physically existing conditions restrain the creativity of the designer.
- Universal laws, beyond the creation of the architect and independent of the climate and geography determine the architectural form. This theory emphasises that some universal forms like basilicas, atria, courtyards, occurring in many solutions became the basis for architectural concepts, independently from culture. The design may undergo certain transformations, but the formal relation is significantly visible.

Mark Gelernter points out that none of the above mentioned theories can explain the origin of architectural form on its own. Looking closely at the analysed buildings, it is impossible to pin down the sole factor that determined such a design and thus it is advisable to look at the architects' opinion on their concepts:

- Mahlamäki created the walls of the hall when he looked at the almost finished project that was a perfectly organized floor plan [1].
- Tomasz Konior based his idea on a box inside a box structure. Inside these boxes and in between them, different kinds of events can take place.
- JEMS Architects referenced the context of the location and the changing needs of the society transition from industrial to knowledge-based economies.

These designs introduced a regular, straight-angled geometry with a form that requires more advanced design and production technologies, additionally enhancing the prestige of the buildings.

In all those aspects the complex geometry is related to the creative approach of the architects. In order to classify the buildings according to Mark Gelernter, it seems that the architectural form of the Museum POLIN arose from the

architect's emotional need. In case of the Polish National Radio Symphony Orchestra, useful ideas from the past were developed, whereas the finesse of design solutions is the merit of the designer's knowledge and intuition. Similarly, the International Congress Centre design responds to the needs of modern society - that is, the architectural form of the building is the expression of the spirit of the age.

## 5. Conclusion

Hans – Georg Gadamer points at the importance of beauty, which in the assessment of art is the factor that operates independently of time, as well as social and political factors [10]. If we look at the architecture of the last few years, it becomes obvious that special attention is paid to buildings which seemingly are a compact, simple structures and this mystery of wonder - this architectural 'WOW' – is hidden in their interior structures.

Thought, matter and place are the three basic elements of architecture that can provide insight into life, human needs and dreams, and become a relay of communication between generations and between societies. We can experience our own legacy thanks to ancient buildings, situated in beautiful, important and sometimes inaccessible places, magnificent gothic cathedrals, medieval or renaissance piazzas with perfect proportions, and other wonderful buildings throughout history, as well as once destroyed or forgotten places that have been restored.

In the history of culture, the meaning of these places is not only the increasing perfection of technology and the evolution of architectural thought. It also means that the changing forms of human existence affect the change of human needs and perception of architectural beauty. In architecture, as in culture, the present means that buildings already created are engraved in our memory. This all-encompassing memory empowers us to create places with new architectural imagery.

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