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ARCHITECTURE WITHOUT CONTEXT. CATHEDRALS OF CULTURAL CONSUMPTION

ARCHITEKTURA BEZ KONTEKSTU. KATEDRY KONSUMPCJI KULTURALNEJ

Abstract

The onset of the twenty-first century has ushered in transformations in technical and technological realms, altering the way architecture is perceived. Architecture has shifted from primarily constructed with reinforced concrete to silicon, endowing it with unprecedented durability while rendering it more physically transient and fleeting. This article focuses on exhibition pavilions, which have become integral to the global architectural heritage. These pavilions underscore that meticulously composed photographs can transcend the need for contextual surroundings, transforming these objects into abstract art that transcends conventional design principles. Contemporary exhibition architecture embraces the liberty of creation and invites dialogue with viewers. This paper addresses whether modern approaches to temporary exhibitions are dominated by commercialisation and spectacle or represent a historical pursuit of creating timeless architecture.

Keywords: consumption architecture, architectural icons, pavilions, interdisciplinary designing

Streszczenie

Początki XXI w. przynoszą zmiany: oprócz kwestii techniczno-technologicznych zmienia się sposób zapisu architektury z żelbetu na krzem, co czyni architekturę zarówno trwalszą niż kiedykolwiek, jak też fizycznie ulotną i efemeryczną. Analizowane w artykule obiekty pawilonów wystawowych, które na stałe zapisują się w dorobku architektury światowej, wskazują, że idealnie wykadrowane fotografie nie potrzebują kontekstu otoczenia, pozwalając obiektom stać się sztuką abstrakcyjną, która nie trzyma się kanonów projektowania. Współczesna architektura wystaw komunikuje się z odbiorcą poprzez dowolność tworzenia. W artykule podjęto próbę odpowiedzi na pytanie, czy współczesne kształtowanie tymczasowych form wystawowych jest przepełnione komercjalizacją i spektaklem, czy znaną z tradycji próbą tworzenia architektury ponadczasowej.

Słowa kluczowe: architektura konsumpcji, ikony architektury, pawilony wystawowe, projektowanie interdyscyplinarne

1. INTRODUCTION

The search for architectural experiences that do not fit into the context of a place, architectural styles or aesthetic canons is not a new endeavour for designers. Contemporary interdisciplinary design has allowed architects to draw on the achievements of many scientific and technical disciplines. Still, the concept of the designer-craftsman, artistically shaping their work, was already known in previous eras. Today's technological possibilities make it

possible to simultaneously design complex solutions for many sectors. The apparent trend towards technically advanced objects is particularly evident in the age of digital architecture, which is often created without context or despite the context of its surroundings.

Designing arbitrary forms at considerable expense makes it possible for exhibition buildings to join the ranks of the recognisable and memorable despite their short duration. The apparent desire of designers to make their creations timeless and the difficult-to-observe universal formula for creating iconic architecture results in many unsuccessful realisations. Objects that can be called iconic are created highly rarely. The distinguishing parameters of iconic buildings include a break with traditional building art and style, reference to historical or cultural symbolism, novelty (in the method of construction, use of materials, and contemporary sustainable construction), location, timeless quality of craft, controversiality during construction and use, accessibility to the public (utilitarian buildings that receive large numbers of visitors are more recognisable), and contemporary media coverage. Iconic architectural objects are very difficult to define, and consequently, many studies list that fall into this category. An example of such a study is the list published on Wikipedia, where thirty-seven well-known architectural objects are presented. Only three buildings from the current century are included in the list. The high proportion of pavilion buildings is evident, although they represent a small percentage of all buildings designed worldwide. Four pavilions for world exhibitions are on this list (Crystal Palace, Eiffel Tower, Barcelona Pavilion designed by Mies van der Rohe, Biosphere designed by Fuller). Buildings such as the Metropol Parasol and the Olympic Stadium (the previous research was based on Frei Otto exhibition pavilion in Montreal 1967), also complete the list.

The history of the architecture of pavilion buildings, for more than 150 years, has allowed designers to practice, in a peculiar way, ways of designing beyond the technological possibilities seen in other permanent structures at the time. The ephemeral nature of exhibition pavilions allows for an absurd degree of freedom in the choice of form and materials that make up contemporary architecture, and the lack of connection with the surroundings makes it possible to relocate exhibition pavilions and give them new functions as public buildings. Examples of buildings designed for world exhibitions that have become permanent buildings prove that the city's image can improve. Those buildings advertise the city as landmarks, such as the Eiffel Tower in Paris, the Atomium in Brussels, the Geodesic Dome in Montreal, the Space Needle in Seattle, or the Mies van der Rohe Pavilion in Barcelona (moved to a different location after the exhibition, but left as a museum). Pavilion buildings represent a special place in an architecture overflowing with commercialisation, being, from their inception, a contribution to the exchange of goods, art, militaria, and knowledge in the commercial world of sales. This paper analyses pavilion buildings that are architectural icons pavilion buildings and have permanently remained some of the most recognisable structures in the world.

2. BACKGROUND

In the architecture of the 21st century, we can observe an inevitable breakthrough due to the ongoing changes in the use of traditional design methods by, among others, the introduction of digital tools. The dynamically progressing digitalisation is now *infiltrating* the processes involved in the creation of architecture, and an example of this is the BIM platform (which enables building construction at the design, execution and use stage and even the recirculation

of materials). Designing based on digital tools is increasingly being used for Architectural Design Optimisation. The increased use of parametric design and simulation of building parameters enables optimisation of, among other things, material, cost and time, both for construction and subsequent operation. Computational digital modelling methods provide new opportunities in the creative search for “eco-efficient” architectural forms. At the same time, it leads to changes in designing workflow – the established sequence is reversed: instead of drawing projections that define the shape of a block, three-dimensional objects are created that are also a record of information about the building. Thanks to the availability of advanced, generative techniques and engineering achievements, designers can reproduce forms found in nature. In their ephemeral and unique nature, pavilion objects become the subject of an architectural game subsuming computational algorithms. Architecture becomes more organic, ‘gaining’ a certain plasticity that the natural world has, and the architect can better use today’s tools to shape it¹. Generative methods for modelling load-bearing structures, especially in the design of small-scale structures, are greatly accelerating their development. This is particularly evident in facilities such as pavilions, shelters or observation towers, where unconventional structural solutions are increasingly being used.

The work of the architect in the 21st century transcends the preparation of technical documentation for construction. It includes controlling the fabrication process, assembly processes, material selection and multidirectional optimisation, and preparing *file2factory* files. Alan Penn compares the work of the modern computer architect to that of the medieval master craftsman, who, thanks to the availability of modern tools (allowing him to control fabrication and assembly processes while constantly optimising material and geometry), can actively oversee all aspects of a building’s construction². Due to the algorithmisation of tools in the design process, this is an increasingly accepted way of creating solutions for contemporary architecture. These tools allow designers to transcend the realm of design related to the context of the parameters. Allowing architecture, especially unique pavilion buildings, to shape itself in isolation from its surroundings to shock, arouse sympathy or draw attention to a particular problem presented through architecture.

When designing architectural structures using digital tools, many questions are asked at the early design stage; not only is the optimisation of structures important, but also their fabrication method. The task of computer-aided design becomes searching for the relationship between the spatial form and its optimum supporting structure and then the fabrication technology, which can be seen in constructing continuous cross-sections and spatial bar structures. An example of this search in contemporary architecture can be found in form-finding. The design process of form-finding starts with the generation of the initial form of the object, interacting with gravitational forces, external loads, etc. Generating structural forms already at the conceptual stage is linked to the assumption of using specific structural systems and materials that work best with them in terms of force transmission. Structural morphology encompasses the geometric search and analysis of the relationship between the form, the forces acting on it, and the manufacturing or prototyping technology. In the 21st century, digital methods have developed the most, allowing the design, analysis and

¹ K. Januszkiewicz, *Projektowanie parametryczne oraz parametryczne narzędzia cyfrowe w projektowaniu architektonicznym = Parametric design and parametric digital tool in architectural design*, “Architecturae et Arbitus” 2016, no. 3, pp. 43–60.

² R. Glynn, B. Sheil, *Fabricate: Making digital Architecture*, Riverside Architectural Press, Cambridge 2012.

multidirectional optimisation of structures based on multiple variables. Designers can use digital tools to determine optimal spatial structures for given loads computationally. However, at the moment, there are no structural materials with variable material parameters as required. Analysing the dynamics of bionic pattern applications in architecture, it seems that creating such materials is a matter of the near future. The programmes analyse individual solutions for the indicated boundary conditions through mathematical algorithms operating based on proportionality requirements, minimum or maximum dimensions, etc. This is particularly interesting from the point of view of prefabrication, which today is increasingly characterised by the idea of post-Fordism, where the pursuit of unification is not excluded from the creative search for individual solutions. "The use of the computational capacity of computers has made it possible to test many concepts concerning the laws of nature practically. The knowledge of rules has become the basis for formal experiments. These, in turn – form the basis for the design"³.

Algorithmic reality goes back to the instruments of strict, in the mathematical sense, definition of geometry, "and also, thanks to the invention of Pierre Bezier and the parameterisation of the description of complex shapes", it is possible to model "in a more natural way. We do not seek a generalised definition, but transform until we reach a state that satisfies the senses"⁴. By applying the above techniques, architecture gains spontaneity, and the architect gains the tools to form objects freely. The algorithmisation of tectonic form-making processes does not take away the creative character of the architect's work but only provides new tools for rationalising engineering solutions.

3. EXHIBITION PAVILIONS GENESIS

Pavilion buildings represent a quantitatively small fraction of all buildings built worldwide, but with great creative potential. Since the beginning of the World Expositions, they have influenced the development of architectural activity worldwide. A comparative analysis is possible because of dozens of buildings, built at the same time, subordinated to the same theme, form a base. Exhibitions are all the more interesting because, given their short lifespan, buildings are designed as economically as possible. Those ideas that do not meet this condition do not find continuity in subsequent exhibitions. Analysing contemporary trends in the design of exhibition pavilions at EXPOs, it becomes noticeable that architects strive to achieve spectacular, unique, ecological, or easy-to-fabricate forms.

The event that promotes temporary facilities of an exhibition nature is the World Exposition. It is a unique event, supporting the development of trade, the exchange of knowledge in the fields of technology, science or art, fostering international contacts, making it possible to follow the latest trends and tendencies from countries all over the world and presenting a record of the development of civilisation.

Despite the short history of the World Expositions, the exhibitions from which they originate date back to ancient times. Their history is inextricably linked to areas of life such as

³ J. Słyk, *Nowy idealizm? Le Corbusier, Alexander i architektura generatywna*, "Czasopismo Techniczne. Architektura" 2010, no. 7-A2, p. 339.

⁴ J. Słyk, *Źródła architektury informacyjnej*, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2012 p. 83.

science, politics, art and technology. The ancient Romans organised numerous festivals, usually associated with celebrations in honour of the deities, in which a desire to promote, among other things, cultural values was evident. In the Middle Ages, fairs and parish indulgences were known to take on an increasing momentum over time and to change their function from purely commercial to exhibition (representing the community's cultural heritage). With the Industrial Revolution, more attention began to be paid to the achievements of technology and the development of engineering in human evolution.

The ephemeral nature of the pavilions has prompted reflections on the themes of preserving their memory in the memories of visitors from the very beginning of their creation. Hence, the architects desire to ensure that their works remain remembered as unique spectacular and often identified as icons of cities. An example that has not only become part of the memories of the World Exposition but is still today one of the most recognisable buildings in the world is undoubtedly the Eiffel Tower. The tower was intended to serve as an observation point and a testament to industry development at the Paris Exposition 1889. The original plan was to dismantle the building, but it is still an indispensable part of today's city (commemorating the French Revolution's centenary). At its construction, it was the tallest building in the world (300.65 metres). Another structure that stayed after the exhibition is the observation tower in Seattle, USA, from the 1962 exhibition.

The idea of world exhibitions was born in 1849 during a national exhibition in France. Britain's Prince Albert and representatives of his government decided to hold the Great Exhibition of the Industry of All Nations in London in 1851. Until then, countries had not been willing to sell freely and exchange experiences of engineering achievements. Britain, which had pioneered many military and technological developments at the time, wishing to develop sales to other countries, organised an open exhibition inviting other countries to participate. The high-tech exhibition, especially against the achievements of rival France, brought the English considerable success. In six months, the first World Exposition was visited by a record number of visitors – over 6 million, providing a significant boost and promotion for subsequent exhibitions. The vast interest resulted in countries competing to host World Expositions, mainly France with Great Britain in the first period, and in the next period, the United States and other countries.

3.1. CRYSTAL PALACE, LONDON, 1851

Until the Great Exhibition in London, exhibitions in European countries were thriving, but no nation dared to lend its exhibition space to other countries to advertise its products. Most countries, fearing economic competition, opted for national exhibitions. A significant change came in 1850, when the British, who were at the forefront of cutting-edge technology at the time, noticed that the European economy was growing faster and beginning to match their level of development. It was decided in Britain that the Great Exhibition planned for 1851 would be an international exhibition. The basis for this belief was the still superior quality of technology of the British people compared to other countries and the belief that by showcasing their skills, they could export their goods to European markets. The main theme of the exhibition was economics and industrial development. The 34 most economically developed countries participated in the show.

The Great World's Exhibition in London's Hyde Park ran from 1 May to 15 October 1851 and was intended to symbolise industrial development. It was clear at the opening that the

exhibition would be a spectacular success. Thanks to the support of the British government, the aristocracy, and the technical community, it received unprecedented global publicity (the exhibition received more than 6.5 million visitors).

A significant influence on the success of the 1851 exhibition was the building designed by Joseph Paxton and a structural design by Fox and Henderson. A key design consideration was that the entire structure could be assembled and dismantled quickly. Modern in its expression, the building was designed mainly in steel and glass, and the skeletal system allowed the interior space to be freely adjusted. By design, the project combined traditional architecture with modern construction technologies. The entire 1,851-foot (564m) long building was divided by a transverse transept into two parts, separating the exhibition into a western (British) part and an eastern part, which housed the stands of other countries.

After the exhibition, the Crystal Palace was demolished and moved to Sydenham, where it served as a cultural and exhibition centre. In 1936, the building was destroyed in a fire and was not rebuilt again. The Crystal Palace was so significant in the culture of world exhibitions that it served as a model in the design of exhibition buildings through subsequent world exhibitions from 1855 in Paris and 1862 in London, as well as exhibits not classified by the BIE as world exhibitions such as the Dublin Exhibition and the New York Exhibition (both 1853). In all the above shows, John Paxton was invited as a consultant to assist with knowledge and experience.

3.2. EIFFEL TOWER, PARIS, 1889

One of the most known buildings preserved after the EXPO was the tower designed by Gustave Eiffel and Maurice Koechlin. From its inception, it was controversial among artists and extremely popular with visitors, as evidenced by the record number of visitors (over 32 million, more than the number of French citizens at that time). Its designers were guided by the idea that the structure should impress by its size, allowing a view of the whole of Paris. It was constructed using 18,038 steel elements connected by some 2.5 million rivets. Despite its initial controversy, it became the most important and most visited structure next to the Machine Gallery. The rivalry between nations to make the most significant impact on visitors promoted technical innovations. Indeed, electricity had already been used at smaller exhibitions (for the first time at the 1881 exhibition in Atlanta). However, the scale and splendour with which the exhibit objects, including the Eiffel Tower and the gardens at night, were illuminated created exciting spectacles.

At exhibitions after 1889, engineering thought continued and developed, but no significant changes or improvements were made in the design of the exhibition pavilions in terms of the forms and materials used. The period of the early twentieth century was a period of turbulent economic, economic and military development; this positively influenced the momentum with which subsequent exhibitions were designed but did not change the approach to design until the war.

3.3. GERMAN PAVILION, BARCELONA, 1929

Despite being demolished immediately after the exhibitions, some of the buildings have become part of the modern architectural canon. One such pavilion is undoubtedly the Mies Van der Roche pavilion, built for the 1929 exhibition in Barcelona (Ill. 1). This building was

designed in line with the modernist trend of the time and is one of the most recognisable buildings of this style. The installation demonstrated modernist space design (based on the five postulates of modernism), where the boundary between exterior and interior was clearly blurred. The pavilion exhibited precision and modern tendencies in developing German crafts and industry. The pavilion is currently in Barcelona, moved aside from the exposition location.



Ill. 1. German Pavilion at Barcelona EXPO in 1929, project Mies van der Rohe (authors compilation).

3.4. GERMAN PAVILION, MONTREAL, 1967

Prior to the exhibition, architect Richard Buckminster Fuller had been researching dome-shaped covers for many years, seeking structural integrity, modularity, and material optimisation in terms of fabrication and replication of the supporting structure. The Biosphere – pavilion, designed in 1967 for the Montreal Exhibition, was a significant technological and technical achievement. The spatial form of the pavilion was an icosahedron in which, to achieve a three-dimensionality replicating the surface of a sphere with a diameter of 76 m and a height of 62 m, divisions into near equilateral triangles were introduced. Inside the dome was a seven-storey structure that constituted the US exhibition pavilion.

The use of triangular divisions stiffened the structure, which was characterised by high strength and stability with relatively low structural weight. The largest possible volume in relation to the area of the pavilion was also achieved. Fuller's idea was to streamline the

technological construction. As with the German pavilion, the simplicity of the geometry resulting from the structural logic was important, and the originality of the Biosphere was an additional asset. The pavilion's work shows the beginnings of sustainable design, which became extremely close to the architect. Like most temporary structures, the *Fuller Dome* was to be demolished immediately after the exhibition. However, due to the interest and record number of visitors, it was decided to leave it as an integral part of the urban net. After a fire in 1976, the pavilion was not renovated until the 1990s and has since housed an exhibition promoting environmental protection and the ecosystem of the St Lawrence River. Shell structures established themselves for many years in the architecture of exhibition pavilions and permanent buildings, but their special type – geometric domes, did not find subsequent interest among architects and constructors.

4. CONTEMPORARY EXHIBITION PAVILIONS

Despite incurring significant costs for the host cities, the World Expo often does not provide sufficient financial return during exhibitions. However, it benefits developing local businesses, technical infrastructure, business facilities and cultural development. The organisation of exhibitions enhances international identification and trade contacts, and preparatory work at the urban planning level has often contributed to an improved quality of life for local residents.

In the 21st century, computer-aided design methods are becoming apparent to carry out standard calculations and design forms that were previously difficult to realise. Design goes beyond the framework of structural or material optimisation, and one of the contemporary trends in pavilion design is the parameterisation of tectonic and structural solutions, often inspired by bionics.

At the end of the 20th century, the optimisation of structural forms became a multidisciplinary issue, combining two disciplines, i.e. architecture and construction, and considering issues from biology, chemistry, computer science, mathematics, etc. The digitalisation of the design environment, evident at the turn of the 20th and 21st centuries, provided new tools that streamlined design development (graphic presentation – 3D model, creation of technical documentation, etc.). The introduction of computer programs created the basis for the digital optimisation of forms, making it possible to reproduce bionic structures and behaviours, thus indicating a new morphic language of architecture. Subsequent generations of tools supporting the creation of architecture are looking for rational solutions, where bionics can be inspired by reproducing advanced geometry, mapping systems and their behaviour (in terms of minimal energy consumption or searching for material properties at the nanoscale). Free-form design is also possible thanks to developments in construction techniques, including improvements in building materials and manufacturing processes.

4.1. METROPOL PARASOL, SEVILLE, 2011

The structure, which is a canopy located in Seville, Spain, known as the Metropol Parasol, 'Las Setas de Sevilla' or 'Seville Mushroom' is one of the most famous architectural structures built in the 21st century, classified as one of the Icons of Architecture. The structure is considered the largest wooden structure in the world, measuring 150 metres long, 70 metres

wide and 26 metres high, which cost around €50 million. The Metropol Parasol is designed as an open structural canopy with a wooden structure and an organic shape to protect passersby from the sun. Under the umbrella structure is a market with handicrafts, food products, and an archaeological museum. Today, the structure is the city's third most visited architectural feature while supporting the services located in its basement⁵. Despite attracting much controversy for placing modern architecture in the historic fabric of the city, the building has undoubtedly become iconic as the largest wooden structure, and the architect himself, when entering the competition, failed to check the feasibility of the building's construction in terms of structure and materials.

5. SUMMARY

A wealth of experimentation characterises the architecture of the exhibition pavilions using new materials and design methods, which is evident in the EXPO exhibitions. The 21st century is characterised by a significant increase in the creation of individual objects that emanate the thinking and sophistication of multidisciplinary design, which changes the perception of architecture and the possibilities for dialogue with the viewer. One of the rules given by Vitruvius *firmitas* (permanence) is becoming obsolete. The aspiration of architects to leave behind a memorable work of art by building permanent structures is no longer relevant in the age of the Internet. Exhibition pavilions significantly impact the development of architectural thought and the freedom to shape form, construction and technology. This is happening due to attempts, in their shaping, to gain a deeper understanding of the phenomena occurring in contemporary design. Under strict conditions (creation time, duration and limited cost), architects can test the latest materials, methods and fabrication techniques. This exploration takes place on many levels. These objects are often created without formal constraints on the free expression of the architectural imagination.

Architectural design becomes something ephemeral, less literal than material engineering or structural optimisation – “the creation of architecture begins with observation, with the ability to look, which is already in itself a creative act, because it means recognising the perception of the spiritual and intellectual reality that emanates from it”⁶. Due to the specific purposes and requirements placed on temporary structures, often presenting unconventional solutions, they impress with their simplicity and the use of the latest technology. The design of pavilions using advanced geometries has contributed significantly to developing new spatial structures. Design work on open pavilion structures sometimes influences the choice of fabrication methods as early as the concept phase. Mention should also be made of contemporary technical and technological thought, which has significantly influenced architectural design development. The most effective way to use building materials is to introduce their mechanical properties into the calculation algorithms. Optimising the design and effectively streamlining the fabrication process is essential in the concept development phase. Because

⁵ J.J. Białkiewicz, *Metropol Parasol – nowa ikona Sewilli, Kontrowersje wokół obecności współczesnej architektury w historycznej tkance miasta = Metropol Parasol – Seville's new icon. Controversy surrounding the presence of contemporary architecture in a city's historical urban tissue*, “Teka Komisji Urbanistyki i Architektury” 2018, vol. 46, pp. 77–109.

⁶ R. Loegler, *Tworzenie architektury – od wolnej myśli do skonsolidowanej formy*, “Architecturae at Arbitus” 2016, no. 2, p. 34.

of the properties of specific materials, the architect F.L. Wright, already in modernism, recognised the need to implement them into the conceptual phase of a project. Le Corbusier, in his lectures, often pointed out that the ‘new’ architecture should be characterised by the temporality of forms, adapting to people’s current needs: “We are still building our houses of stone, with massive walls, while light and slender cars are speeding at sixty miles an hour through snows or under the tropical sun...”⁷.

The nature of exhibition pavilions is that they have little connection with their surroundings or only fit into their context. The basis of their design is that they can be easily assembled and dismantled quickly, with little effort. Temporariness and limited interference with the surrounding environment are the guiding principles of the search for an architecture of experimental exhibition pavilions.

The interest in cyclically created temporary objects offers the possibility of developing temporary architecture on a much larger scale than before 2000. The lack of utilitarian function of pavilions and structures is a major advantage, allowing their authors to interpret the commissioned tasks individually. Various architects’ innovative, unconventional ideas can be traced through a series of unique examples: “Even when it is bad, it just stays and stays until the right combination of money and power finally gets the better of it”⁸.

Instances of architecture without the context of a place, which have permanently ingrained themselves in culture and art, are undoubtedly the pavilions at world EXPO exhibitions, thematic exhibitions, and biennales. Although they constitute a small fraction of the structures built every year, they are a subject of interest not only for architects worldwide but also attract many visitors, inspiring and creating a gallery of finished structures. Often, after being relocated elsewhere following the exhibition, they become art in themselves and a representation of the creative possibilities of architects. The architecture, especially of pavilion structures, has become architecture for advertising, enhancing the visibility of architects, investors, and consumer culture products.

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A u t h o r ' s N o t e

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