

Błażej Ciarkowski  [orcid.org/0000-0001-5661-3429](https://orcid.org/0000-0001-5661-3429)

[blazej.ciarkowski@uni.lodz.pl](mailto:blazej.ciarkowski@uni.lodz.pl)

Institute of the History of Art, Faculty of Philosophy and History, University of Lodz

POST-WAR MODERNIST ARCHITECTURE IN POLAND AS PART  
OF THE EUROPEAN HERITAGE OF TWENTIETH-CENTURY  
CONCRETE-BASED ARCHITECTURE

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ARCHITEKTURA POWOJENNEGO MODERNIZMU W POLSCE  
JAKO CZĘŚĆ EUROPEJSKIEGO DZIEDZICTWA XX-WIECZNEJ  
ARCHITEKTURY BETONOWEJ

**Abstract**

The architectural heritage of post-war modernism in Poland is often named a “dissonant” or “unwanted heritage”. Its evaluation and interpretation is often ambiguous, whereas the social reception, in spite of the growing common awareness of the matter, very diversified. A proper assessment of the phenomenon requires analysis against the background of twentieth-century European architecture. The InnovaConcrete project is comprised of multidisciplinary studies on strategies for the preservation of concrete-based heritage which provide for identification of the most valuable assets in Europe. The aim of this paper is to place the local Polish cultural heritage of twentieth-century architecture against the broad context of global and universal values and to present the methodology of the research.

**Keywords:** concrete-based architecture, post-war modernism, socialist modernism, conservation, 20<sup>th</sup> century heritage

**Streszczenie**

Architektoniczne dziedzictwo powojennego modernizmu w Polsce często bywa określane jako “kłopotliwe” bądź “niechciane dziedzictwo”. Jego ocena i interpretacja są niejednoznaczne, a społeczna recepcja, pomimo rosnącej powszechnej świadomości, bardzo zróżnicowana. Właściwa ocena zjawiska wymaga analizy na tle europejskiej architektury XX wieku. Projekt InnovaConcrete obejmuje multidyscyplinarne badania nad strategiami zachowania dziedzictwa architektury betonowej, które przewidyują identyfikację najbardziej wartościowych obiektów w Europie. Celem niniejszego artykułu jest umiejscowienie lokalnego dziedzictwa kulturowego architektury XX-wieku w szerokim kontekście wartości globalnych i uniwersalnych oraz prezentacja metodologii badań.

**Słowa kluczowe:** architektura betonowa, powojenny modernizm, socjmodernizm, konserwacja, dziedzictwo XX wieku

## 1. Introduction

Professor Andrzej Basista described the architecture of the period of the Polish People's Republic as 'concrete heritage' [1]. The twentieth century is sometimes called the century of the 'triumph of silicon, the atom and concrete'. Concrete, a construction material that has been known since ancient times, combined with steel reinforcement, became a material fit for a new century. Reinforced concrete has not only opened a broad spectrum of new possibilities to architects and structural engineers in the shaping of architectural spaces but has also become somewhat of a synonym for modernity. Is the Polish 'concrete heritage' of post-war modernism limited to the unwanted relics of a past period and a reflection of foreign ideas that was not always successful? To what degree does the negligence of recent decades affect the assessment of the heritage of Polish architecture from the period of the Polish People's Republic? When answering these questions, it would be appropriate to consider the architecture of Polish post-war modernism in the broader context of European cultural heritage, as well as currently ongoing studies – both theoretical and those that directly touch on the subject matter of conservation. The motivation for the discussion presented in this article was studies performed as a part of an international multidisciplinary project concerning innovative methods of protecting and conserving concrete architectural heritage.

## 2. Modern architecture in the Polish People's Republic

It is not possible to confine the history of Polish architecture of the years 1945–1989 to merely a single generalising term by labelling it 'the architecture of the communist period'. A. Basista pointed out that this term is broadly (and mistakenly) associated with the socialist realism of the Stalinist era [1, p. 19]. Subsequent scholars (including Jerzy Hryniewiecki, Tadeusz P. Szafer and Maciej Czarnecki) noted a much a greater diversification of the conditions of architecture in the latter periods of the history of the People's Republic of Poland [16, 4]. In the context of the discussion featured in this article, of particular significance are the periods in which modernist thought dominated domestic architecture.

After the official rejection of the doctrine of socialist realism in 1956, the authorities of the PRL "consider expanding this abbreviation as most non-Polish readers will not know this" saw modernist architecture as a tool for building a new identity for society, as well as an opportunity to bridge the gap that separated the country from the capitalist west. Architects were given the possibility of confronting the achievements of designers from the west with their own works. Successes in this field convinced the authorities that this was the right course for architectural policy [3, p. 66]. One example of this is one of the most significant and most prestigious projects of the 1970s – the Warsaw Central railway station, designed by Arseniusz Romanowicz and Piotr Szymaniak and built in the years 1972–1975. The British press of the time hailed it as a model in terms of the design of such buildings. Werner Huber compared it to other railway stations of capital cities the train stations in Brno and the Paris Montparnasse



Fig. 1. Zarzuela's Hippodrome in Madrid [by author]

station, highlighting the advantage of the Warsaw station. He wrote that the Central Railway Station was a true icon of Poland's capital [10, p. 208].

The conversion of the architecture of the PRL to modernism coincided with the second half of the 1950s, when reinforced concrete shell structural systems were gaining popularity. After the times of the pioneers of these types of structures, such as Eduardo Torroja, Pierluigi Nervi or, in later years, Felix Candela, they became widely used solutions. Their high structural performance, the freedom of their visual form, as well as associations with the abstract art of the turn of the 1940s and the 1950s caused shell structures to become all but a synonym for modernity. At the same time, it was one of the final moments of an international approach to the use of concrete in architecture and a common language of architectural forms in different states. Shell structures were being built from Brazil and Mexico, through Spain and the Soviet Union, all the way to Japan. Along with the revision of modernist doctrines in the 1960s, the discussion shifted towards 'national concrete', while architecture pursued individual, local qualities instead of common values [7, p. 103].

The shell structure fashion did not go unnoticed in Poland, as proven by articles in the daily and professional press from the start of the 1960s. They described individual new projects [2, 12] and explained the general principles of the design of structural systems of this type [21].

Before the complex of the Warsaw Central train station was built, Romanowicz and Szymaniak designed cross-city line railway stations in the capital. The first proposals of four new stations were developed as early as 1954–1955 and assumed the construction of concrete, shell-type structures, each of which was to be adapted to the local context and

was designed to be different from the others. Construction work began in 1962 and was completed in 1963. During this time, the shape of each building changed, but their general principles were preserved; this made it possible to acknowledge them as one of the most interesting manifestations of modernity in Polish post-war architecture even after almost half a century had passed.

### **3. The InnovaConcrete project in Poland**

The individual character of innovative forms, combined with the position of representing a broad trend, caused Warsaw's Cross-City Line stations to become included in the InnovaConcrete – Innovative materials and techniques for the conservation of the twentieth century concrete-based heritage' project [24]. The goal of the project, which was planned for the years 2018–2020, is the valorisation of the heritage of twentieth-century concrete architecture in Europe, the development of innovative methods of its protection and raising public awareness of its value.

The varied character of the activities outlined in the project and the partners comprising the project consortium required a precise division of duties. These include the following closely related fields: analysis of the state of the preservation of selected structures, including on-site and laboratory studies; the development of innovative methods of securing concrete surfaces; the testing of the methods on individual structures. Furthermore, historical and socio-economic studies are conducted simultaneously throughout the entirety of the project; these are aimed at the valorisation and identification of the potential of twentieth-century concrete architecture, as well as raising public awareness of its significance.

All of the studies are conducted on a group of seven selected structures representing different ways of using concrete in architecture and spatial forms (open-air sculptures, monuments) as well as various periods of construction. These are, in order:

- ▶ the Centennial Hall in Wrocław (M. Berg, 1911–1913);
- ▶ the monuments in Torricella Peligna – the 'Angel' and the 'Tower' (N. Lucci, 1922; W. Sibona, 1950–1961);
- ▶ Zarzuela Hippodrome in Madrid (E. Torroja, 1934–1941);
- ▶ Eduardo Torroja Institute for Construction Sciences in Madrid (E. Torroja, 1951);
- ▶ Cross-City Line railway stations in Warsaw (A. Romanowicz, P. Szymaniak, 1954–1963);
- ▶ the remembrance site at Fort IX in Kaunas (A. Ambraziunas, V. Velius, 1984);
- ▶ the Elogio del Horizonte sculpture in Gijón (E. Chillida, 1989).

Whilst the selection of the Centennial Hall, a building placed on the UNESCO World Heritage Sites List in 2006, should not raise any doubts [9], the decision to include Warsaw's Cross-City Line railway stations does require a certain degree of explanation. The candidacy of the projects by Romanowicz and Szymaniak was selected from several proposals of post-war concrete architecture in Poland (other structures that were considered for selection included the furniture factory in Wyszaków, 'Okraślak' Poznań Department Store, the apartment blocks at Plac Grunwaldzki in Wrocław, the 'Bunkier Sztuki' art gallery



Fig. 2. Reinforced concrete canopy at the Warsaw Śródmieście WKD railway station [by author]

in Krakow and the Silesian Scientific Institute in Katowice). The choice was motivated by, among other things, the fact that the complex of stations (treated as a whole) constitutes a representation of concrete shell structures, which became a synonym for modernity in Eastern Bloc countries after the 1960s.

From the five shell structures placed in the four stations in Warsaw, one was chosen for the performing of on-site studies – the WKD Śródmieście station. As with the others, this station was built in the years 1962–1963. The trackway, the platforms and the ticket booths were placed below street level. From the perspective of the street, the only visible elements were the downward-leading stairs covered by reinforced concrete roofs (one set of roofed stairs was located in the western part of the platform, while another was placed in the eastern part) [18]. The shape of the reinforced concrete shell structures on top of the WKD Śródmieście station was an original solution. Contrary to other station pavilions, its architects and structural engineers did not use typical straight or quadric surfaces, instead aiming for freely-shaped forms. Thanks to this, completely unique surfaces with organic shapes and a subtly curved surface were formed. Romanowicz's former co-workers mentioned that some of the solutions were designed on-site, during construction. This stance corresponds to F. Candela's principles, who mentioned that despite its apparently strictly scientific character, the design of these types of structural systems must take into account a certain degree of imperfection in workmanship and the calculations themselves. Because of this, the intuition of the architect is necessary; this is closer to philosophy or artistic instinct than pure mathematics [19, p. 274].

#### 4. List of European concrete heritage – initial selection objectives versus their execution

As a part of the activities intended to raise public awareness of the significance of twentieth-century concrete architecture specified in the project by Thomas Harboe (ICOMOS), the Committee endeavoured to make a list of the most important structures.

The initial list, prepared by Susane Landrove and DOCOMOMO Iberico, from which 100 structures were to be ultimately chosen, covered 208 structures. They included both leading works of global architecture (The Unite d'Habitation in Marseilles by Le Corbusier), as well as projects that were relatively poorly studied and discussed (a gas station in Ljubljana by Milan Mihelic), and elements which, due to their strictly technical, infrastructural character, are often ignored by architecture historians (acoustic screens on Malta by the Royal Engineers). It should be stressed that the selection covered only the architectural heritage of European Union member states. Although the adoption of this criterion appears indisputable in light of the assumptions of the entire InnoVaConcrete project and the Horizon 2020 framework programme, it has obviously affected the value of the study material. This caused the elimination of structures of such significance like the Goetheanum in Basel (Switzerland), the 'New Belgrade' district in Belgrade (Serbia), the spomenik in Krusevo (Macedonia) and the outstanding projects of Russia and Ukraine, which represented late modernism and constructivism, respectively (e.g. Saint Petersburg's residential towers and the Derzhprom office building in Kharkiv).

Among Polish structures that were placed on the list, there is the previously mentioned Centennial Hall and the market hall in Wrocław (R. Pluddemann, H. Kuster, 1906–1908), the 'Runotex' plush and velvet factory in Kalisz (S. Sikorski, J. Głowczewski, W. Zalewski, 1962), the Silesian Scientific Institute in Katowice (S. Kwaśniewicz, 1972–1977) and the Bunkier Sztuki art gallery in Krakow (K. Tolłoczko-Różyńska, 1959–1965). The Cross-City Line railway stations in Warsaw, as a complex of structures instead of a single building, were not placed on the list.

Each of the entities working on the list (ICOMOS, CSIC, DOCOMOMO, UŁ) had 100 votes at its disposal, with constraints set in place stating that at least one structure had to be selected from each country. Furthermore, in accordance with the principle of balance (and therefore abandoning scholarly objectivism to a degree), it was decided that each country should be represented by no more than 5 buildings. The key criteria adopted for the evaluation of individual buildings were:

- ▶ a structural system based on the use of concrete as the primary construction material and highlighting it in the form of the building;
- ▶ the representation of different types of concrete use (monolithic concrete, reinforced concrete, ferro-cement, sprayed concrete, aggregate concrete, concrete finishes on the facade);
- ▶ the representation of different types of construction method (concrete cast on-site, on-site prefabrication, off-site prefabrication, concrete block structure);
- ▶ the representation of different types of structural systems (e.g. shell structures, concrete frames, domes, arches/parabolic arches, systems based on load-bearing walls);
- ▶ the representation of various forms of use;
- ▶ the representation of individual countries.

A full set of four votes and an undisputed place on the '100 list' was given to Wrocław's Centennial Hall. Three votes were given to the market hall in Wrocław and the building of the Silesian Scientific Institute. The presence of projects by M. Berg on the list is, however, conditioned by the decision to mandatorily include (or disqualify) buildings that constitute the subject of the project and are mentioned in the previous paragraphs. It can therefore turn out that Polish concrete architecture will be represented by R. Pluddemann's hall and the currently ruined building by S. Kwaśniewicz. This situation begs a series of questions regarding the method adopted in the process of preparing the list.

The arbitrary manner of the selection appears unavoidable in a situation when it is necessary to confine a century of the history of concrete architecture to a mere 100 representative cases. Similarly, it is inappropriate to eliminate the constraint that necessitates the selection of at least one building from each EU member state (the upper limit of five buildings is, however, questionable). At the same time, concerning the fact that practically all of the buildings represent different phases of the development of modernism, perhaps it would be justified to highlight the aspects of precursor and innovative character [14, pp. 12–15]. This would lead to the acknowledgement of projects that established new trends in the development of architecture at the time of their construction. These matters will be discussed in subsequent phases of the project. At the same time, from the perspective of the Polish research team taking part in the InnovaConcrete project consortium, it would be appropriate to consider both the significance of Polish concrete architecture on the scale of Europe, as well as the conservation problems associated with it.

## 5. Polish concrete heritage against the European background

In the discussion on the significance of Polish concrete architecture in the broad group of buildings that comprise European heritage, this paper limits itself to selected post-war projects. In comparison to the architecture built prior to 1939, it constitutes a field that has been identified to a much lesser degree. Furthermore, such objects are often perceived as 'undeserving' of the rank of heritage buildings, which considerably impacts the state of preservation of the architecture from the period of the PRL. This is demonstrated by, among other factors, the relatively small amount of post-war buildings that have been placed under conservation in the entire country [17, pp. 87–88]. The changes that are taking place<sup>1</sup> in this field appear to be progressing too slowly in relation to ongoing building decay. At the same time, the massive amount of material concerning 'the lowborn'<sup>2</sup> has forced discussion of only a few distinct examples.

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<sup>1</sup> One example of positive changes is, among other things, placing the SKM station and the 'Warsaw Central' train station on the Masovian Voivodeship historical monuments registry list. The entry procedure was initiated in 2018 (at the time when the InnovaConcrete project was starting, the works of A. Romanowicz and P. Szymaniak were not yet under conservation).

<sup>2</sup> A term used to describe the architectural heritage of the PRL, popularised by Filip Springer (F. Springer, *Żle urodzone*, Warszawa 2011), its first recorded use being by Jakub Lewicki (J. Lewicki, *Jak ocalić co cenne z architektury XX wieku*, „Gazeta Wroclawska” 18.12.2008).



Fig. 3. 'Okraślak' – former department store in Poznań [by author]

During the course of the initial selection, a number of buildings that represent interesting and innovative design solutions but had not gained acknowledgement in the eyes of the consortium for various reasons were rejected. These included two buildings built in Łódź in the 1950s and 1960s: a sports hall (the Palace of Sport) and the Łódź University Library (the BUŁ). The first building was designed by Włodzimierz Prochaska. Its innovative structural system was based on eight concrete parabolic arches with a span of 72.5 m and a height of 28.5 m [22, p. 419]. A movable formwork was used to cast them, marking its first ever use in Poland [5]. Prefabricated reinforced concrete shells were placed on the arches. The structural elements of the hall were built in 1948. The conceptual design of the BUŁ building was developed during the same period. The authors of the design, Edmund R. Orlik and Eugeniusz Budlewski, used a then-pioneering prefabrication system, with concrete elements being manufactured on-site [5, p. 189]. The elements that comprised the structure included H-frames, reinforced concrete beams, prefabricated wall elements and floor slabs (which were replaced with ribbed slabs in the main building) [11, p. 332]. The facades were given a rectangular-patterned reinforced concrete finish with lesenes and parapets, while the main entrance was accentuated with a reinforced concrete cantilever roof. The rejection of the candidacy of Łódź's Palace of Sport appears understandable in light of the fact that qualities that are key from the point of view of the IC project are either almost unobservable or are a result of the construction process itself. Furthermore, buildings of a similar function (sports and entertainment halls) were strongly represented on the '100 list'. It is difficult to accept the rejection of the BUŁ building, which would not only constitute another example of the



rather small group of buildings with a prefabricated structural system, but is also an example of the use of different structural systems within a single building (column and slab structure, cantilever structure, prefabricated facade elements).

Among the buildings that were too easily rejected during the initial selection stages, of note is the 'Okraślak' Poznań Department Store by Marek Leykam. Fortunately, the initial decision was changed and the building has been finally included on the '100 list'. This constitutes an exceptional example of the use of an innovative prefabrication technology to create an original, modern form of a retail building. The building is well-entrenched in the public consciousness and the value of the 'Okraślak' is undisputable (as confirmed by its placement on the historical monuments registry list in 2003). However, the matter with the 'Bunkier Sztuki' Gallery of Modern Art building in Krakow presents itself differently. Designed by K. Tołłoczko-Różyska, the building constitutes an example of an interesting combination of late modern architecture with the historical context of its surroundings (including a seventeenth-century granary). The building, which features a concrete skeleton structural system, has a particularly significant value in the form of its external walls, with a distinct texture of a three-dimensional formwork (the work of S. Borzęcki and A. Hajecki), as well as the sculptural, monolithic concrete roofs over its entrances [23, pp. 117–120]. The Bunkier, although it had been placed on the initial list, did not garner enough acknowledgement to make it to the final 100.

## 6. Lost values

The fact that from among over 200 propositions, only five were multi-family residential buildings built using the panel block system appears quite telling<sup>3</sup>. Both in post-war Western Europe and on the other side of the Iron Curtain, prefabricated housing blocks permanently altered the landscape of cities and towns, in addition to leading to a social revolution of sorts. Plans of placing the residential towers at Plac Grunwaldzki in Wrocław, designed by Jadwiga Grabowska-Hawrylak, on the '100 list' were abandoned because of their thermal modernisation. However, while there can be no doubt that the functionality of residential developments should constitute a priority, it should be admitted that, along with the addition of the external layer of thermal insulation, the authenticity of the buildings has been lost. In initial proposals, alternative methods of increasing thermal insulation values had been discussed; however, traditional solutions were ultimately selected<sup>4</sup>. Thus, the buildings, which combined a skeleton structural system (H-frames) and three-dimensional prefabricated facade elements with varied surface textures [8, p. 377], have lost a part of their original

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<sup>3</sup> The following were included: Ernst Thalmann's housing estate in Berlin, the Barbican Centre and the Brunswick Centre in London, Bijmelmeer in Amsterdam and Roskilde Amtsgaard in Roskilde.

<sup>4</sup> At the time of the writing of this article (November–December 2018), the administrators of the Polish Mother's Memorial Hospital in Łódź were facing a similar dilemma. The building, completed in 1984, has facades covered with distinct, bright reinforced concrete prefabricated elements. Architects have proposed installing thermal insulation on the inside of the building so as to avoid an irreversible alteration of the form of the building.



Fig. 4. 'Bunkier Sztuki' Gallery of Modern Art building in Krakow [by author]

value. Similar modernisation processes have become the fate of the majority of housing block estates built using panel block technology.

Whilst the thermal modernisation of multi-family buildings appears to be a fully justified activity, those cases of post-war heritage whose destruction has been either deliberate or unintentional are a cause for alarm. The neglected reinforced concrete roof at the Warszawa Śródmieście WKD train station was aimed to be placed on the historical monuments registry list in 2018. However, before this was performed, its twin structure, which A. Romanowicz and P. Szymaniak had designed in the western part of the station, was demolished in the 1990s. Waclaw Zalewski, who was responsible for the conceptual design of the structural schemes of the Cross-City Line pavilions in Warsaw, also created a series of interesting reinforced concrete roof structures for industrial buildings. Some of these were demolished, like the hall of the Defenders of Westerplatte industrial plant in Łódź (architects: Alina and Aleksander

Dębski) [6, p. 32]. Others, due to neglect, have lost their past values, as demonstrated by the factories in Mińsk Mazowiecki or Wyszaków [13, p. 207]. The 'Runotex' factory in Kalisz, which has been included in the InnovaConcrete project – and whose owners have not only refrained from separating its ties with the PRL-period history of the plant instead even reminding others of it [25] – has survived in a relatively good condition. The owners' stance appears particularly valuable to the history of Polish twentieth-century architecture in light of the words of Zalewski himself, who stated that the greatest challenge in his career had been "thin wall structural systems – the hall in Łódź [...], the factories in Mińsk Mazowiecki, Wyszaków..." [20, p. 32].

The decay of factory buildings in Wyszaków or Mińsk leads us to the Silesian Scientific Institute that has been mentioned in an earlier part of this article. The impressive, brutalist massing of the building, designed by S. Kwaśniewicz (structural system design: Franciszek Klimek) was the result of site-specific conditions, which sort of forced the design to include full external walls and have interior spaces that face an internal courtyard [15, p. 111]. At present, the building is in a state of ruin, and its legal state (the property belongs to several owners) is not conducive to formulating optimistic scenarios concerning its future. Is the placement of the institute on the closed list of selected European buildings justified? The consortium underlined its formal values and innovative functional solutions, which, however, lose their significance in light of the considerable decay of its structural substance.

## 7. Conclusions and future plans

Activities planned for the years 2019–2020 as a part of the InnovaConcrete project will cover the finalisation of on-site studies and the extension of activities that raise public awareness of the role of twentieth-century concrete architecture in the creation of European heritage. Apart from the well-described '100 list', a narrowed-down list of twenty-eight buildings is planned, on which every EU member state will be represented by a single selected building/structure. Previous work on the project has made it evident that the selection will require using both a more fine-tuned methodology, as well as, in all likelihood, arbitrary decisions.

From the perspective of the Polish research team, the conclusions drawn from the discussion presented above and concerning the previous work as a part of the InnovaConcrete project can appear pessimistic. Many buildings that stand out in terms of design and technical innovation have been permanently destroyed or altered. The most outstanding example of the 'concrete heritage' of the architecture of the PRL period – the train station in Katowice, built in 1973 (Wacław Kłyszewski, Jerzy Mokrzyński, Eugeniusz Wierzbicki) was demolished in 2010 despite protests by Polish and international circles<sup>5</sup>. Fortunately, as the years have passed, so has the situation of the heritage of post-war modernism in Poland been significantly

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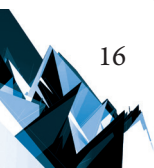
<sup>5</sup> Architectural and heritage conservation communities were among those who were protesting, with letters sent to authorities by ICOMOS and Europa Nostra.

improving. This is demonstrated by more and more buildings being placed under conservation, e.g. Poznań's 'Okraślak' or the 'Warsaw Central' railway station (initiation of proceedings in 2018). Joint efforts as a part of projects of European significance constitute a chance to expand our research perspective. Sharing experience on the international stage makes it possible not only to make use of the achievements and knowledge of research and scientific centres from other countries, but also to restore works of Polish post-war architecture to the mainstream discussion of the heritage of the twentieth century in Europe.

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