



**Anna Orchowska-Smolińska\*, Anna Kriegseisen\*\*,  
Jakub Szczepański\*\*\***

***Interdisciplinary research as a form  
of monument protection and preparation for the investment process  
on the example of the former Gdańsk Shipyard complex***

***Introduction***

The history of the shipyard complex, known as the former Gdańsk Shipyard, began in 1844<sup>1</sup>. It was then that in the area north of the Old Town, located just over 7 km from the mouth of the Martwa Wisła River to the Bay of Gdańsk, a maintenance and repair base for the Royal Prussian Navy was established. The pressure of maritime growth and the need to expand the Prussian Navy in the 2<sup>nd</sup> half of the 19<sup>th</sup> century initiated the industrialization process of Gdańsk, the main link of which was the production of ships. Over the next 150 years, the Gdańsk shipbuilding centre underwent numerous extensions and modernization, leaving behind a complex resource of technical heritage in an area of over 70 ha<sup>2</sup>. It consists of monuments

of industrial architecture with accompanying infrastructure and technological equipment. The key component of the heritage resource of the former Gdańsk Shipyard are the elements of the intangible heritage associated with the spatial and architectural complex, among which the most important are those related to workers' strikes and the idea of "Solidarity". It played a key role in overthrowing the communist system in the 20<sup>th</sup> century in Europe. The resource of Gdańsk's post-shipyard heritage is largely preserved despite the damage to its integrity resulting from the relatively late implementation of conservation protection tools. The whole creates a unique resource of tangible and intangible cultural heritage, documenting social and economic development as well as scientific and technical progress. Unique values, significantly exceeding the local resource, can be defined as universal values.

Identification, research and scientific analysis of cultural heritage resources are considered to be the basic and most effective tools in the field of protection of cultural assets [2]. Also, in this case, they play a leading role in managing cultural resources, including planning investments and determining the scope of conservation works. However, the complexity and character of the historic post-industrial complex [3], [4] necessitate the use of a scientific research methodology adapted to its specificity and a modified form of architectural and conservation documentation.

***State of research and conservation status***

The state of knowledge about the cultural resources of the former Gdańsk Shipyard before 2013 was based on residual conservation documentation and expert opinions prepared only in the period immediately after the decla-

\* ORCID: 0000-0002-9930-3655. Faculty of Architecture, Gdańsk University of Technology, Poland, e-mail: anna.smolinska@pg.edu.pl

\*\* ORCID: 0000-0001-5181-4758. Faculty of History, University of Gdańsk, Poland.

\*\*\* ORCID: 0000-0003-4384-2155. Faculty of Architecture, Gdańsk University of Technology, Poland.

<sup>1</sup> The cultural heritage of the shipyard area covers a multidimensional time perspective of the history of Gdańsk. Beginning in the Middle Ages, the Teutonic Order established the third municipal organism in this area, beside the Right Town (*Rechtstadt*, now the Main City) and the Old Town (*Altstadt*) – the Young Town (*Jungstadt*). After expelling the Teutonic Knights, Gdańsk residents liquidated the Young City (1455). The name has survived in the nomenclature of the timber warehouses located there, known as the Young City Wood Yards (1621 – *Holtz Raum auf der Junge Stadt*, 1690 – *Jungstädtlicher Holtz-Raum*). In the 1<sup>st</sup> half of the 17<sup>th</sup> century (1625–1636), the northern line of early modern fortifications of the Gdańsk Fortress was built in this area [1].

<sup>2</sup> Including the areas of the former Gdańsk Shipyard, still in use for the needs of sea production, located on the Ostrów Island (*Holm*), a total of approximately 140 ha.



Fig. 1. View of a fragment of the area of the former Gdańsk Shipyard in 2019. Until the beginning of the 21<sup>st</sup> century, the area in the foreground of the photo was filled with shipyard halls constituting one of the main production lines of hull construction. Currently (2022), investment works related to the construction of multi-family buildings are underway there (photo by A. Orchowska-Smolińska)

Il. 1. Widok fragmentu obszaru dawnej Stoczni Gdańskiej w 2019. Teren na pierwszym planie fotografii do początku XXI w. wypełniały hale stoczniove stanowiące jeden z głównych ciągów technologicznych budowy kadłubów. Obecnie (2022) trwają tam prace inwestycyjne związane z budową budynków wielorodzinnych (fot. A. Orchowska-Smolińska)

ration of bankruptcy of Gdańsk Shipyard S.A. in 1996. In 1999, at the request of the Pomeranian Regional Monuments Inspector (Pomorski Wojewódzki Konserwator Zabytków – PWKZ), the first registration cards of architectural and construction monuments from the Shipyard area (17 cards) were created [5]. During the economic transformation at the end of the 20<sup>th</sup> century, the awareness of historic values and the potential of the iconic shipyard complex was only beginning to take shape. In the first conservation opinion prepared in 1999 regarding the value of selected buildings from the shipyard area, only eight historic buildings were recognized by a scientific research team, while demolition was allowed for another nine [6]. In the same year, the PWKZ made the first entry into the register of monuments in the Shipyard area, which included: (1) Solidarity Square with (2) the Fallen Shipyard Workers of December 1970, (3) a fragment of the shipyard wall (with inscription plates), (4) the historic Gate No. 2, and (5) the building housing the Health and Safety Hall [7]. In addition to being the only entry in the register of monuments at that time, for many years the only legal form of protection for the Shipyard's monuments were local spatial plans [8], [9] adopted in 2004, taking into account the conservation protection of historical objects and cultural values in the former shipyard area to a very limited extent.

At the turn of 2013 and 2014, the shipyard area south of the Martwa Wisła River was entirely subject to the inventory of historical buildings located in the area of the former Gdańsk Shipyard. The main purpose of the research was to document the state of preservation of post-shipyard cultural assets. As a result of the field research, 290 historic objects were identified, for which individual registration cards were prepared. Comprehensive information base about buildings and objects being post-shipyard

development was then handed over to the PWKZ. Only 66 of them were included in the Provincial Register of Monuments (Wojewódzka Ewidencja Zabytków – WEZ)<sup>3</sup> [10], [11]. In 2015, an important expert study was published, entitled *Studium wyboru form ochrony konserwatorskiej terenów i obiektów postocznioowych w Gdańsku* [Study of the selection of forms of conservation protection for areas and post-shipyard facilities in Gdańsk], one of the conclusions of which was the need to protect the most valuable facilities of the former Gdańsk Shipyard [12]. With regard to the contemporary changes in the urban structure of the discussed part of Gdańsk in 2016 [13] and 2018 [14], a two-volume study was prepared under the supervision of Professor Piotr Lorens from the Gdańsk University of Technology. The first volume, written in collaboration with Janusz Lipiński, concerned the potential of post-shipyard areas in the context of their redevelopment. In the second part, prepared together with Professor Jakub Lewicki, the historic substance and planning heritage were assessed.

The legal protection of the first buildings and strictly shipyard areas took place only in 2017 when the oldest part of the historic industrial complex of the former Imperial Shipyard was entered in the Register of Historic Monuments [15]. In the same territorial scope, in 2018 the President of the Republic of Poland recognized a part of the shipyard area as Monument of History<sup>4</sup> [16]. The protection of other parts of the former Gdańsk Shipyard took place in 2019 and 2020 [17], [18], which summed up the twenty-year-long process of implementing appropriate legal forms of monument protection of the most valuable cultural heritage objects in its area. Meanwhile, at the beginning of the new millennium, the demolition of historic buildings belonging to the shipyard and the removal of elements of its equipment and infrastructure began<sup>5</sup>.

<sup>3</sup> The PWKZ initially entered 260 inventoried objects in the Gdańsk Shipyard, such as shipyard halls, workshop buildings, docks and ramps (slipways), elements of infrastructure and development (bollards, street lamps, crane rails, fragments of historical surfaces, etc.) and devices – cranes, gantries, lathes, milling machines and many more. Ultimately, the Pomeranian Provincial Conservator of Monuments withdrew from entering into the WEZ many of the recorded elements of the historic development of shipyard areas, such as fragments of quays, tracks, and fences, gates or lanterns. Currently (as of 04/19/2022), the WEZ has 85 monuments from the area of the former Gdańsk Shipyard, including the shipbuilding area north of the Martwa Wisła River (Ostrów Island).

<sup>4</sup> The Monument of History (area defined as *Gdańsk Shipyard, the birthplace of Solidarity*) status include historic buildings and structures of the former Imperial Shipyard complex, the building housing the historic Health and Safety Hall and the Solidarity Square with the Monument to the Fallen Shipyard Workers of December 1970. It is a fragment of the historic area of the Gdańsk Shipyard (15 ha) with a part of the historic complex. In the justification, we can read that the Gdańsk Shipyard construction team is an example of over a hundred years of history of architecture and shipbuilding development, and was a place of struggle for employee rights and the birth of the Independent Self-Governing Trade Union "Solidarity".

<sup>5</sup> Some of the demolished facilities are: 2000 – shipyard clinic, 2007 – slipways of the K2 Hull Division (A1, A2), 2008 and 2012 – prefabrication halls of the K2 Hull Division, 2008 – residential complex (the villa of the director of the Imperial Shipyard), 2010 – canteen hall, 2012 – the building of the Design and Construction Office, 2011–2013 – shipyard buildings located along Jana z Kolna Street (including Gate No. 3).

The transformation process of the Gdańsk shipyard area initiated this way was associated with the emergence of plans to convert the oldest part of the shipyard into a new district of Gdańsk, i.e. connecting the post-shipyard area with urban tissue (Fig. 1). It is worth mentioning here the unique documentation of the Shipyard's heritage by Michał Szlaga, which began to be created in 1999. The artist undertook a several-year-long project of photographic recording of changes in the cultural resources of the shipyard areas undergoing the first transformations. The publication of the results of the documentation work took place in 2013 in the form of a richly illustrated album with numerous descriptions [19]. Two industrial heritage researchers, Dr. Waldemar Affeld from the Gdańsk University of Technology and Professor Jacek Dominiczak from the Academy of Fine Arts, played an important role in the project in the context of reading the meanings of shipyard remains.

### *Research model of the post-industrial heritage resource on the example of the former Gdańsk Shipyard*

The article aims to present the research work carried out in 2018–2021 on the cultural resources of the former Gdańsk Shipyard and the conservation protection tools based on them, supporting the system of protection and management of its heritage. The research works were carried out by a team of scientists from the Department of History, Theory of Architecture and Monument Conservation at the Faculty of Architecture of the Gdańsk University of Technology<sup>6</sup>, in cooperation with external experts [20], [21]. The research cycle operated on three scales: (1) landscape scale concerning the mutual relations of the examined historic complex with the surrounding landscape (including the city), (2) general (ensemble scale) for the entire historic industrial plant and (3) detailed (monument scale) for selected historic buildings (Fig. 2).

The research concept of the cultural heritage of the former Gdańsk Shipyard had to be based on several important assumptions. One of them was to adapt the scientific survey of the historic complex to the specifics of a large-scale state production plant, which was the Gdańsk Shipyard<sup>7</sup>. Therefore, it was important not only to establish the shipbuilding production technology during its operation but also to determine changes in production, in which individual buildings and their associated shipyard areas (land and water) participated.

The study *Ekspertyza określająca dopuszczalny zakres ingerencji inwestycyjnej na terenie zespołu zabytkowego*

*dawnej Stoczni Gdańskiej w Gdańsku w kontekście zachowania krajobrazu kulturowego oraz ochrony wartości dziedzictwa materialnego i niematerialnego tego obszaru, miejsca proponowanego do wpisu na Listę Światowego Dziedzictwa* [An expert opinion defining the permissible scope of investment intervention in the historic complex of the former Gdańsk Shipyard in Gdańsk in the context of preserving the cultural landscape and protecting the value of the tangible and intangible heritage of this area, a place proposed for entry in the World Heritage List] [21] covered all of the shipyard areas within the historical reach of the Gdańsk Shipyard<sup>8</sup>, and was divided into spatial and morphological units determined based on the historical role they played in the context of the entire technological ensemble and the accompanying development. In addition to in-depth historical research for the whole area as well as individual architectural objects and technical elements using, i.e. literature and archival sources.

Aspects of the industrial (technical) heritage of the shipyard were treated with particular attention. The analysis *Dziedzictwo przemysłowe Stoczni Gdańskiej* [Industrial Heritage of Gdańsk Shipyard] [20] attempted to recreate the layout of the production lines of ship fabrication and assembly that were created for the needs of the shipyard activity in the 2<sup>nd</sup> half of the 20<sup>th</sup> century and had been used until the 1980s (Fig. 3). Shipbuilding processes have been traced in the shipbuilding heritage ensemble. The starting point was the moment of accepting metallurgical materials from the industrial plant, and then their preparation and processing. Then, elements of the hull structure (sections and blocks) were made, and the hull was assembled and launched. The next step was to equip the hull with propulsion devices and auxiliary machines, fitting with the necessary equipment and furnishings. The intangible resource, which can be considered through the preserved post-shipyard space, as well as the historic substance, has a similar significance for the overall consideration of the shipyard's heritage. To register them, analyses entitled *Dziedzictwo niematerialne Stoczni Gdańskiej związane ze strajkami robotniczymi i powstaniem Niezależnego Samorządnego Związku Zawodowego „Solidarność”* [Intangible heritage of the Gdańsk Shipyard related to workers' strikes and the establishment of the Independent Self-Governing Trade Union "Solidarity"] [20] were carried out<sup>9</sup>.

During the second research stage on the shipyard heritage, the focus was on the **valorization** of the asset and on deepening the **landscape analysis**. The post-industrial landscape of the former Gdańsk Shipyard, shaped from the mid-19<sup>th</sup> century to the end of the 1980s, is an important element of the cultural landscape of Gdańsk. It proves

<sup>6</sup> The research was commissioned by the National Heritage Board of Poland, which was entrusted with this task by the Ministry of Culture and National Heritage, in connection with the efforts to enter the former Gdańsk Shipyard in the UNESCO World Heritage List.

<sup>7</sup> The Gdańsk Shipyard was established on two previous Gdańsk shipyards – the Imperial Shipyard (then *Danziger Werft*) and the Schichau Shipyard (*Schichau Werft Danzig*). For over half a century, starting in 1946, the Shipyard operated as a single large-scale production and repair enterprise, and the infrastructure of the previously separate shipyards was integrated.

<sup>8</sup> The areas still used for shipbuilding functions, i.e. those located on the Ostrów island, have been excluded from detailed research.

<sup>9</sup> The following turned out to be of key importance in spatial analyses: recreating the course of the first strike in the Gdańsk Shipyard, defining the routes of the organizers and strikers on August 14, 1980, and indicating the places related to the strike agitation and distribution of volatile materials (cloakrooms, bathhouses, common rooms, canteens, etc.), locating buildings where meetings were organized, workers' groups and places of assemblies and strike rallies, or indicating the buildings where the strike initiators worked.



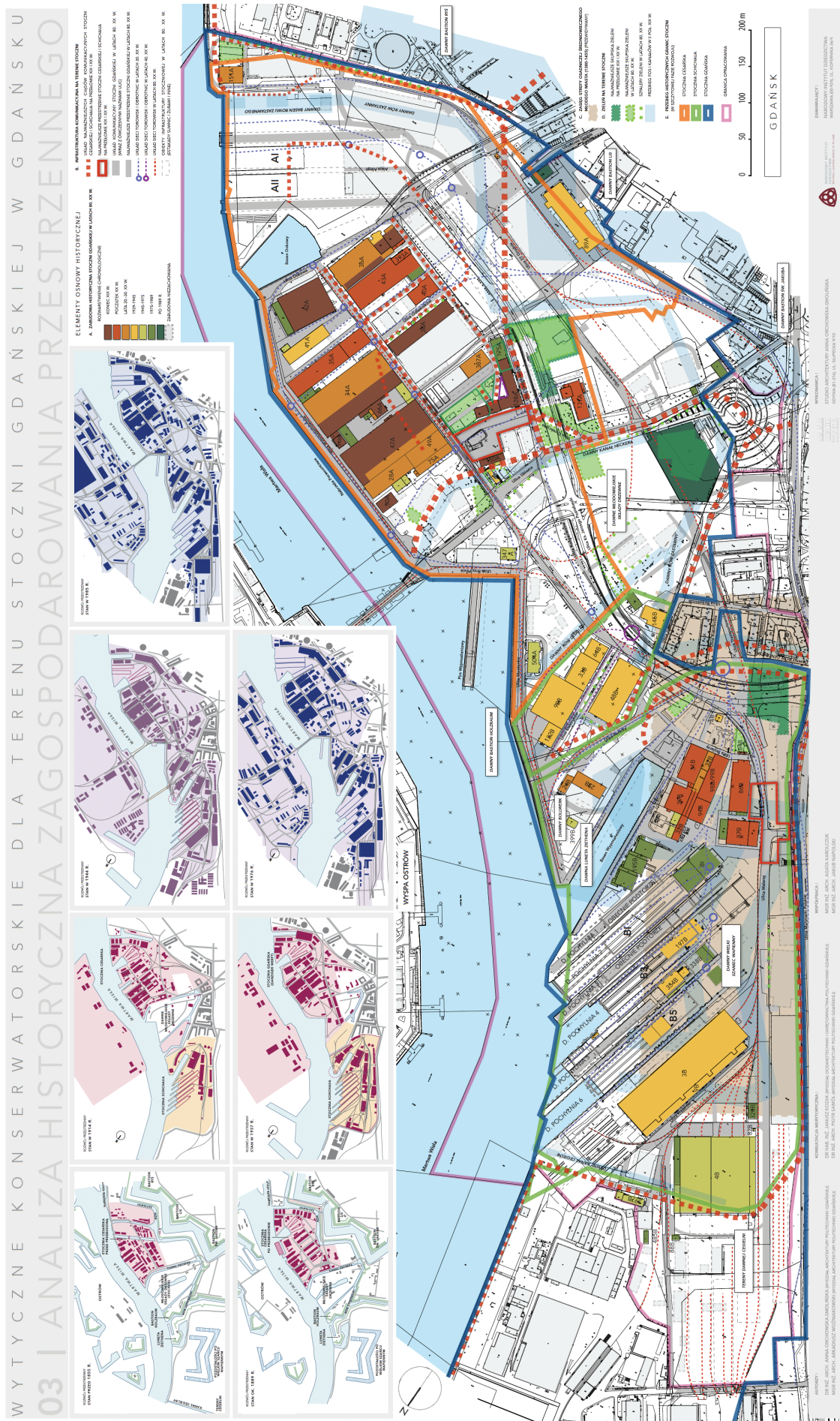


Fig. 2. Historical analysis of the area where former Gdańsk Shipyard developed. The spatial development of the area of later shipyards was analyzed, starting from the Middle Ages and ending in the 1980s. The main studies on the topic concerned historical shipbuilding investments that began to be built in this area in the mid-19<sup>th</sup> century (both preserved and non-existent), 2018 (source: [20])

Il. 2. Analiza historyczna zagospodarowania przestrzennego terenów dawnej Stoczni Gdańskiej. Analizie poddano rozwój przestrzenny rejonu późniejszych stoczni, rozpoczynając od średniowiecza, a na latach 80. XX w. skńczywszy. Główne studia dotyczyły historycznych inwestycji stoczniowych, które zaczęły powstawać na tym terenie począwszy od połowy XIX w. (zachowanych i niestniejących), 2018 (źródło: [20])





Il. 3. Analiza – Dziedzictwo niematerialne Stoczni Gdańskiej związane ze strajkami robotniczymi i powstaniem Niezależnego Samorządnego Związku Zawodowego „Solidarność”, 2018 (źródło: [20])

Ekspertyza określająca dopuszczalny zakres ingerencji inwestycyjnej na terenie zespołu zabytkowego Stoczni Gdańskiej

IDENTYFIKACJA JEDNOSTKI

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built on a rectangular plan, but the ratio of their length to width rarely exceeded 3:1. A typical attribute of the Shipyard was and in many places is – technical infrastructure, such as transmission mains, overhead crane flyovers, and other installations outside the buildings. The landscape of the shipyard was not consciously composed in terms of scenic values, but the subordination of functions created a character typical of industrial plants with their roots at the end of the 19<sup>th</sup> century.

It is characterized by specific picturesqueness, associated with the clear spontaneity of expansion, historical layers and spatial diversity. In its original state, apart from the views from the waterside, it did not offer extensive natural panoramas, but rather view axes with frontages of production halls, intimate urban interiors and narrow passages between buildings. The nature of the production did not require the construction of numerous high chimneys, characteristic of other post-industrial spaces. The height dominants, on the other hand, were cranes, usually concentrated in the areas of the slipways and quays. Their scale combined with mobility, creating changeable views, is a unique feature of this landscape. These and other conclusions from landscape analyzes have created unique conservation guidelines for the protection of spatial and scenic values of the shipyard areas.

### *Architectural and conservation research of the U-Boat Hall (89 A)*

An example of a detailed-scale study was the research prepared for the building of the former Main Warehouse (89A), the so-called U-Boat Hall<sup>10</sup>. Based on that research, *Wytyczne konserwatorskie rewaloryzacji budynku dawnego Magazynu Głównego 89A, tzw. Hali U-Bootów, na terenie dawnej Stoczni Gdańskiej* [The Conservation Guidelines for the revalorization of the building of the former Main Warehouse 89A, the so-called The U-Boat Hall, on the site of the former Gdańsk Shipyard] [22] were elaborated. The aim of architectural and conservation research was to determine the actions and solutions necessary to restore the historical building (Fig. 5). The research was undertaken at the stage preceding the design development of the building for adaptation to cultural, commercial and residential functions. It was meant to point out any works that could cause damage to the historic structure and indicate the way to carry out the conservatory works to maximize the value of historic architecture. The study included: (1) a historical study of the facility, (2) a detailed architectural and conservation description with photographic documentation, (3) a program of conservation



Fig. 5. The body of the Main Warehouse (89A), so-called the U-Boat Hall, in the view from the south-east, 2019 (before the start of conservation works) (photo by A. Orchowska-Smolińska)

Il. 5. Bryła Magazynu Głównego (89A), tzw. Hali U-Bootów, w widoku od strony południowo-wschodniej, stan na 2019 r. (przed rozpoczęciem prac konserwatorskich) (fot. A. Orchowska-Smolińska)

works, and (4) conservation guidelines for future restoration works related to the facility.

It would seem that the application of standard tools of conservation analysis would be enough to develop methods of conduct during the renovation and adaptation of the building. However, shipyard buildings require more complex treatment. The values of this complex are not only in the post-industrial architecture of the early 20<sup>th</sup> century but also the post-war heritage related to the protests and the creation and activity of the Trade Union “Solidarity”. Therefore, in planning the works, efforts are made not only to protect but also to display the material traces of the transformations of objects that took place in the years 1945–1996. Due to the often random nature of these changes, this task is quite difficult to reconcile with both the historical, well-thought-out and structured architectural form and plans for a new investment.

Permanent elements of the conservation documentation had to be modified or extended. In such a case, the historical analysis of the object involves not only collecting the available archival information and the iconography. It is also important to recognize the functions of the building, both in the primary production process and in the post-war one. The functions of the facilities changed with technological changes and the progress in shipbuilding production in the post-war years. Recognition of the purpose of individual spaces is necessary not only for the correct reconnoitring of primary and secondary materials but also to determine any limitations in the adaptive reuse of architectural heritage to new functions (e.g. due to highly toxic production phases when converting to residential purposes).

For stylistically homogeneous buildings, a detailed analysis of primary and secondary materials is usually not necessary. The closer to contemporary times, the fewer layers there are, the easier it is to recognize them, and usually one strives to expose one, primary historical phase. For shipyard

<sup>10</sup> The building, erected in 1941 in the area near the southern border of the shipyard, was intended to constitute its extensive warehouse facilities, adapted to the receipt and storage of the range of equipment imported by car. An additional function was a workshop, in the form of a spacious assembly hall in the basement of the building. The building was probably also used as one of the facilities belonging to the then-developed production line of the shipyard, which was aimed at the production of U-boats. In the years 1945–1996, the building continued its main original function – a storehouse. Since 1997, a music club (“Kazamaty”) operated on the ground floor of the hall.



Fig. 6. Interiors of the Main Warehouse (89A), so-called the U-Boat Hall, 2019 (before the start of conservation works):

- a) repetitive floor of the building (6<sup>th</sup> floor) – top view of one of the atriums,  
 b) the staircase – stairs in all three staircases – double L-shaped stairs, monolithic, reinforced concrete structure  
 (photo by A. Orchowska-Smolińska)

Il. 6. Wnętrza Magazynu Głównego (89A), tzw. Hali U-Bootów, stan na 2019 r. (przed rozpoczęciem prac konserwatorskich):

- a) piętro powtarzalne (magazynowe) budynku 89A (VI piętro) – widok od góry na jedno z atriów,  
 b) klatka – schody we wszystkich trzech klatkach schodowych – łamane, czterobiegowe, żelbetowe, monolityczne (fot. A. Orchowska-Smolińska)

buildings, these analyzes are performed using methods that would apply to historically more complex buildings (Fig. 6). The reason is the assumption made for the entire complex that the primary phase is not overriding, and the adaptations, repairs, and maintenance are to be carried out with respect to all layers by 1989 or even 1996<sup>11</sup>. As a result of this assumption, not only a detailed analysis of bricks, joints, plasters, and artificial stone used for the façade decoration was carried out, but also such elements as metal gates, glazing of industrial window joinery, primary and subsequent colours of individual elements.

An additional difficulty was the destruction of the accidentally used building from the 2<sup>nd</sup> half of the 1990s to 2020. At that time, there was an entertainment club in the building. The upper floors open to the interior in the form of an atrium were used as a paintball area.

Architectural research is presented in a traditional form showing the stratigraphy of the object (elevations, projec-

tions) (Figs. 7, 8) and in a descriptive form. Conservation analyzes were prepared both in the traditional form of description and in the form of analytical drawings, enabling quick identification of, e.g. elements for preservation and conservation and elements allowed for removal, treated as secondary and/or accidental.

At an early stage of the research, each element of the documentation was discussed with the designers as well as with the conservatory authorities. This close cooperation at the design stage allowed for the creation of a unique adaptation, in which the cranes located inside and other devices, as well as elements of equipment and decor, were reconciled with the modern infrastructure of a cultural, commercial and residential function. The raw and monumental architecture of the 1940s, after careful conservation, was reconciled with such elements as a green roof or the surrounding rain gardens. As part of the consultation, it was possible to determine the interference with the substance and the historical structure of the object, acceptable in terms of conservation.

One of the biggest problems when adapting an industrial building to a residential function is the preservation of in-

<sup>11</sup> In the case of the former Gdańsk Shipyard, this turning point should be shifted from the date representing systemic changes in Poland (1989) to the date of declaring the bankruptcy of the plant (1996).



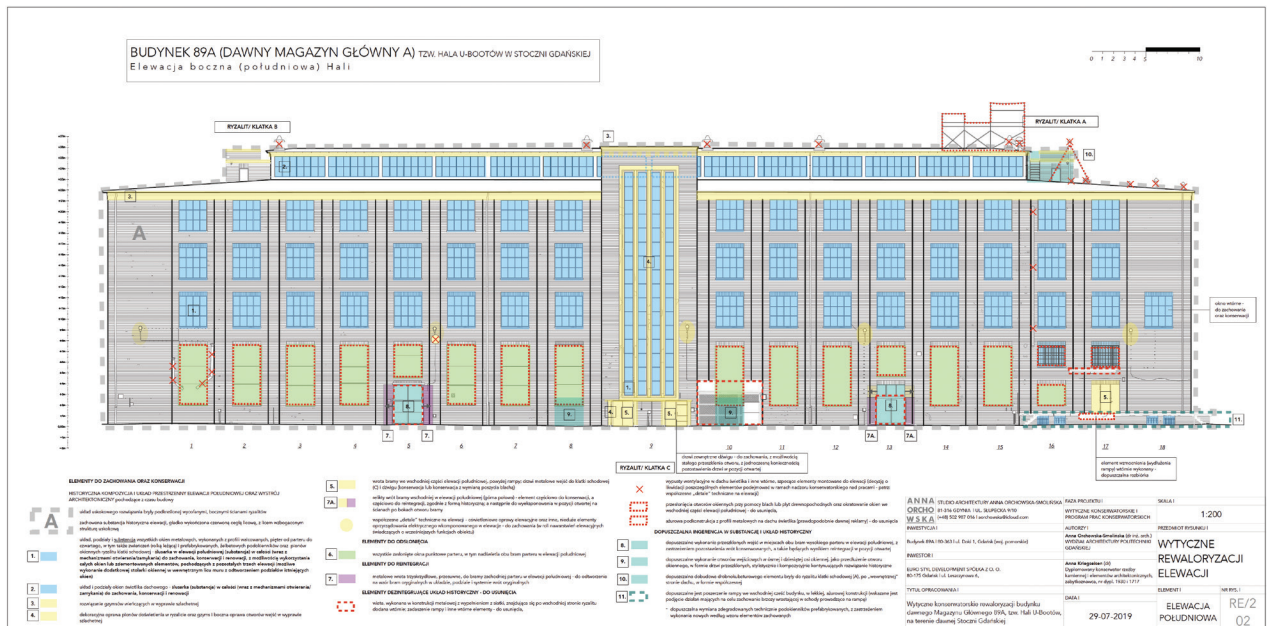


Fig. 7. The scope of the revalorization guidelines for one of the façades (south) of the Main Warehouse (89A), so-called the U-Boat Hall (elements to be preserved / elements to be exposed / elements disintegrating the historical system – to be removed/ possible interference with the substance and the historical structure of the object), 2019 (source: [22])

- II. 7. Zakres wytycznych rewaloryzacji dla jednej z elewacji (południowej) Magazynu Głównego (89A), tzw. Hali U-Bootów (elementy do zachowania oraz konserwacji / elementy do odsłonięcia / elementy dezintegrujące układ historyczny – do usunięcia / dopuszczalna ingerencja w substancję historyczną), 2019 (źródło: [22])

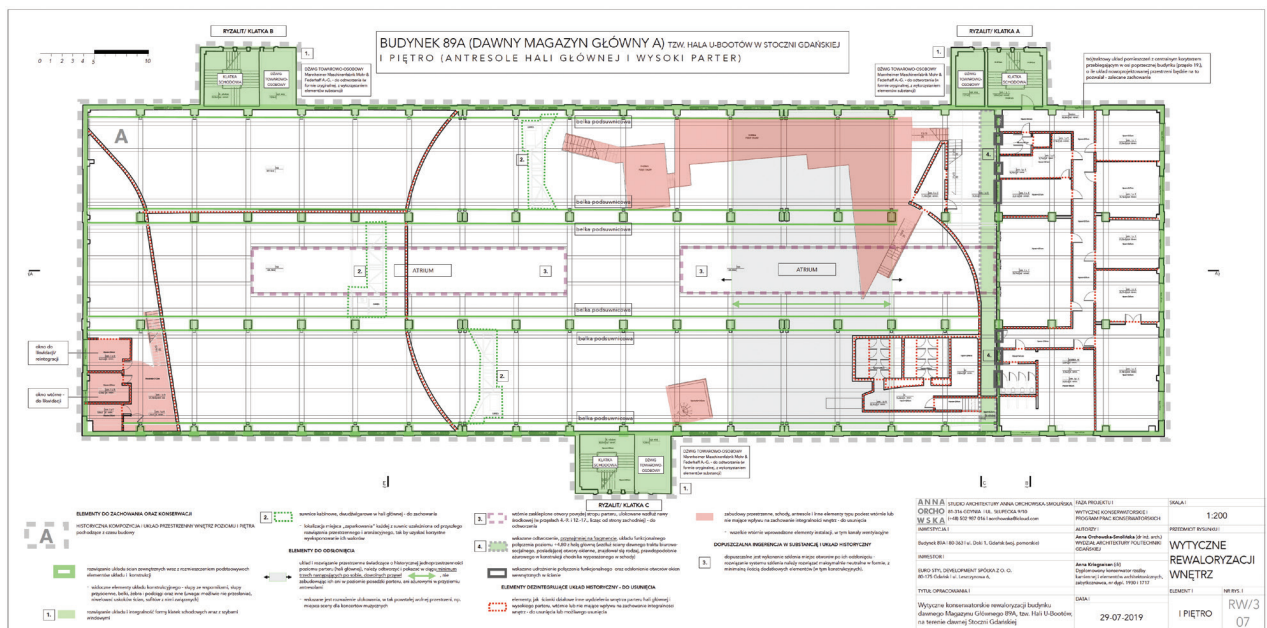


Fig. 8. The scope of the guidelines for interior restoration on the example of the 1<sup>st</sup> floor, of the Main Warehouse (89A), so-called the U-Boat Hall (elements to be preserved / elements to be exposed / elements disintegrating the historical system – to be removed / possible interference with the substance and the historical structure of the object), 2019 (source: [22])

- II. 8. Zakres wytycznych rewaloryzacji wnętrza na przykładzie I piętra Magazynu Głównego (89A), tzw. Hali U-Bootów (elementy do zachowania oraz konserwacji / elementy do odsłonięcia / elementy dezintegrujące układ historyczny – do usunięcia / dopuszczalna ingerencja w substancję historyczną), 2019 (źródło: [22])

dustrial window fittings. Industrial windows were a cheap solution, if only because of their considerable number (nearly 200 windows outside and another ca. 100 pieces inside) (Fig. 9). The steel rails were fitted with windows made of reinforced plain, white glass with a dense mesh.

In the exterior view, large window panels show a division with thin lines of profiles. During use the profiles corroded, and the glazing often cracked and broke. The as-is, then, was a mosaic of multi-coloured glass panes with different types of reinforcement mesh. Determining the original



Fig. 9. Variety of metal windows covered by the detailed examination of the Main Warehouse (89A), so-called the U-Boat Hall. All industrial windows were of a type so-called “complex” windows, made of steel, rolled elements, of the standing or lying type, with fixed or tiltable sections, 2018–2019: a, b) staircase avant-corps (TYPE 4 window) in the southern elevation – a sixteen-row, single-section window, dimensions: width 95 cm, height 2081 cm; five single-deck opening wings, c, d) ground floor (TYPE 2 window) – a six-row, four-section window, dimensions: 260 cm, height 551 cm; three four-quarters wings in the central part with hinged openings, e, f) window of upper floors (TYPE 1 window) – a three-row, four-section window, dimensions: width 268 cm, height 287 cm; four-quarters vertically tilting section that opens vertically (source: [22])

#### II. 9. Różnorodność okien metalowych objętych badaniami szczegółowymi Magazynu Głównego (89A), tzw. Hali U-Bootów.

Wszystkie historyczne ślusarki były tzw. oknami złożonymi, wykonanymi z elementów stalowych, walcowanych, typu stojącego bądź leżącego, z kwaterami stałymi lub otwieranymi uchylnie (Skaning Laserowy 3D M. Kulesza), 2018–2019:

- a, b) okna ryzalitu klatki schodowej (TYP 4) w elewacji południowej – okno szesnastorzędowe, jednodelne, o wymiarach: szerokość 95 cm, wysokość 2081 cm; pięć jednokwaterowych skrzydeł otwieranych,
- c, d) okno przyziemia (TYP 2) – okno sześciorzędowe, czterodelne, o wymiarach: szerokość 260 cm, wysokość 551 cm; trzy czterokwaterowe skrzydła w centralnej części otwierane uchylnie, e, f) okno piętra (TYP 1) – okno trójrzędowe, czterodelne, o wymiarach: szerokość 268 cm, wysokość 287 cm; czterokwaterowe skrzydło otwierane uchylnie w pionie (źródło: [22])

type of glazing required extensive comparative analysis not only with other shipyard facilities but also with other post-industrial complexes from that time. With today's thermal requirements for windows in residential premises (double-chamber windows), keeping these narrow profiles is not possible. The wider profile, necessary for the application due to the thermal conditions that must be met, slightly changes the character of the façade, in which windows are an extremely important element. The decision to choose glazing was not easy either since restoring uniform glazing fundamentally changes the appearance of the raw

walls and staircases of the U-Boat Hall compared to the existing state. On the other hand, replacing the glazing with differently coloured glass could lead to an artificial effect.

The effect obtained is somewhat eclectic: not all elements of the original decor have survived, and not all of them have been recognized. The preservation of later industrial elements is also associated with showing the change in the function of the building in the post-war period. The final effect, however, is satisfactory: the monumental, austere and elegant look of modernist architecture typical of the 2<sup>nd</sup> quarter of the 20<sup>th</sup> century has



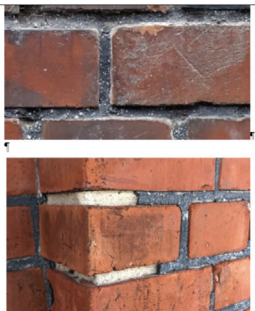
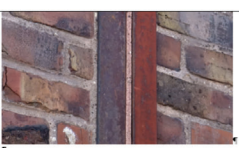
| Kolor: czerwony   |                                  |   |                                |  | Kolor: czerwony NCS S4040-Y70R   |               |   |  |  |
|---|----------------------------------|---|--------------------------------|--|--|---------------|---|--|--|
| Material: spoina  | datowanie                        | opis  | Występowanie (numer budynku)   | Uwagi/Wytyczne konserwatorskie   | Material: kuszalniki stalowe   | Datowanie     | opis  | Występowanie (numer budynku)   | Uwagi/Wytyczne konserwatorskie   |
|  | ¶ Koniec XIX w. – Początek XX w. | ¶ Spoina cementowo-wapienna, barwiona w masie na kolor ciemnofioletowy i czarny, z widocznymi drobnymi wapieniami, zawarta, kładzona płasko, z minimalnym cofnięciem w stosunku do łącza cegły. | 128A, 151A, 47A, 34A, 42A, 89A | ¶ Spoina zachowana w pierwszych fazach budownictwa z II poł. XIX i początku XX w. Kładzona na jękiej zaprawie murarskiej. Stosowana często w końcu XIX w. w budynkach publicznych i kamienicach (np. ul. Kurza 14, 15/16 w Gdańsku). |  | ¶ Lpól. XX w. | Kształowniki w konstrukcjach szkieletowych ścian. W pierwszej warstwie minia w drugiej ciemna czerwony. | 86B, 86B, 89A, 75A, 28A, 49A, 47A, 2A, 50A, 367A, 36A, 132B, 90B, 33B, 64B, 48B, 28B, 87B, 88B, 94B, 96B, 198B | ¶ W większości kształowniki pozabawione oprawiania antykorozyjnego w wyniku zniszczeń. Warstwy do odnowienia podczas prac. |

Fig. 10. Examples of cards of the *Template of materials and colours for the areas of the former Gdańsk Shipyard*, 2021 (source: [23])Il. 10. Przykłady kart *Wzornika materiałów i barw dla terenów dawnej Stoczni Gdańskiej*, 2021 (źródło: [23])

been preserved<sup>12</sup>. The post-war history of the building was preserved, and at the same time, the conservation requirements were reconciled with the requirements of the investment that completely changed the function of the building. The adaptive reuse of this building has shown that, despite the complexity of the problem, it is possible to reconcile the preservation of the historical character of the U-Boat Hall and the 89A Warehouse with the requirements of a modern residential, cultural and commercial complex.

### *Conservatory material and colour template for the former Gdańsk Shipyard area*

The new use of the post-shipyard area in Gdańsk is of great investment interest. In addition to the U-boat Hall (89A), guidelines for the former Shipyard Management Building (128A)<sup>13</sup>, the Shipyard Fire Station (150A)<sup>14</sup> and the Electric Trolleys Workshop (garage building of electric cars with the so-called Lech Wałęsa's workshop; 86B) and the Moulding Plant (carpentry and rope workshop building, then the moulding shop; 38A).

In 2021, due to the growing demand of investors for specific guidelines for individual buildings, on the initiative of the National Heritage Board of Poland and the Ministry of Culture and National Heritage, the documentation was developed – *Wzornik materiałów i barw dla terenów dawnej Stoczni Gdańskiej* [Template of materials and colours for the areas of the former Gdańsk Shipyard] [23]. The idea behind this documentation was to create a template for all buildings of the post-shipyard complex, available at the National Heritage Board of Poland (Narodowy Instytut Dziedzictwa – NID) headquarters. Its

purpose is to serve investors and researchers, as well as authors of subsequent guidelines and programs for conservation work with the basic identification of materials and colours that have been successfully dated. Conservation research was carried out on all objects, with the identification of primary joints and subsequent repairs, the colours were identified with the dating of individual layers (e.g. for metal gates) and the information and propaganda boards, as well as markings and wall paintings from the post-war history of the shipyard, were inventoried. Painted inscriptions from the 19<sup>th</sup> century to 1996 were also recognized and dated.

The research results are presented in cards containing a photo of the element, a vignette assigned to it according to the Natural Colour System (NCS System) along with the colour number, dating, description of the basic features of the element, location and comments (Fig. 10). The last section contains indications for work, e.g. caution when cleaning bricks due to sensitive sinter. The template applies to both the natural colours of materials (brick, joint, artificial stone) and paint coatings<sup>15</sup>.

The conservatory material and colour template is intended primarily for investors, it is to help in the initial recognition of elements to be preserved and conserved, to avoid accidental loss of elements, especially in post-war history, often difficult to distinguish from accidental transformations from the 1990s and after 2000.

### *Conclusions*

The knowledge about the resources of the former Gdańsk Shipyard and the awareness of their complexity, acquired in the course of the research, makes it necessary to conduct equally detailed studies and research for each

<sup>12</sup> The architect composed the elevations symmetrically. Any deviations from this principle are mainly the result of transforming activities, adapting the function of the object to new needs, for example by adding new window openings. The primary compositional principle of the façades is to oppose smooth surfaces, homogeneously faced with brick, to the parts accentuated with evenly spaced window openings.

<sup>13</sup> The Shipyard Management Building has been renovated keeping its original office function but in line with the requirements of modern office space, including co-working space.

<sup>14</sup> There is a wine bar in the renovated firehouse building.

<sup>15</sup> The analysis of the joints in all buildings in comparison with other buildings in Gdańsk and not only public and residential ones, allowed for these joints to be dated, e.g. the joint coloured in the mass black comes from the 2<sup>nd</sup> half of the 19<sup>th</sup> century, and coloured pink – from the 1950s. Dating of post-war paint coatings was possible thanks to interviews with former shipyard workers (e.g. the characteristic greenery that the cranes wear appeared when they were imported) in the 1970s.

of the facilities subjected to adaptation works. It should be performed despite the level of advancement of the research work on the shipyard's resources on a general level or having a tool such as the conservatory material and colour template for the historical shipyard.

For a more complete recognition of the cultural heritage resources of the Gdańsk Shipyard, it is necessary to supplement the studies on its evaluation with the inclusion of a broader comparative approach to the uniqueness of individual components concerning the resources of, inter alia, similar centres, as well as the extension of evaluation threads related to the aspect of social identity (in-depth cultural studies of its resources). It should also be added that during the detailed studies, many interiors of buildings, the state of preservation and equipment which are important from the point of view of conservation analysis, were not taken into account, which affects the overall image of the cultural values of the resource. For this reason, it is necessary to undertake further in-depth detailed studies on an architectural scale, extending to conservation and architectural studies.

### Summary

As a result of the comprehensive research presented in the article, on the example of one of the facilities belonging to the complex of the former Gdańsk Shipyard, a method of conduct has been developed, based on which

it is possible to undertake construction works and carry out conservation works in a given monument. Successful adaptive reuse of the post-shipyard buildings to new functions is possible only thanks to working in an interdisciplinary team. Architectural and conservation research conducted by specialists in the fields of architecture, history of architecture and conservation allows us to look at the conservation issues of the facility in the investment process from different angles. Reconciliation of all requirements (conservation, historical and adaptation) requires close cooperation with researchers and designers at every stage. In the course of our studies and development of guidelines, it was possible to create a model that can also be applied to other facilities of the shipyard complex and post-industrial facilities in general.

The studies conducted so far show that in the area of the former Gdańsk Shipyard there are fewer than a hundred buildings of various scales preserved, at least several hundred essential elements of infrastructure and important industrial equipment of historical value. Only care to preserve various objects of cultural heritage, subject to appropriate conservation measures and consciously combined with new investments, can contribute to the creation of a new city space that proves the identity of a post-industrial heritage site.

Translated by  
Anna Orchowska-Smolińska

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### Abstract

#### *Interdisciplinary research as a form of monument protection and preparation for the investment process on the example of the former Gdańsk Shipyard complex*

The subject that is discussed in the article is a multidisciplinary study of a post-industrial building complex, which was carried out on the site of the former Gdańsk Shipyard. Its authors prove that in the case of complex objects of post-industrial heritage, the use of traditional schemes of description, assessment and valuation of a monument consisting in distinguishing primary and secondary materials for individual elements of the complex has serious limitations. Based on these experiences, the article presents a research model for an industrial complex that is a special example of a heritage site for which the oldest cultural layers do not constitute its greatest value. The authors of the article set themselves the goal of presenting the research method they created, based on strict adaptation to the specificity of the facility by means of, among others, recognition of the way it works, and especially the technological processes of the plant in the 1970s and 1980s, a period that had a special impact on the constitution of its status as an object of outstanding values. One of the procedures used in the research was the inclusion of specialists from the shipbuilding industry, historically associated with this particular industrial plant, in the work of the team. This allowed for a more complete identification of the resource in terms of technology and historically used production methods, as well as setting the framework for its protection and creating a conservation concept. The summary of the article presents the potential of using the presented research model in the design process on the example of an industrial facility prepared for the investment process (former Main Warehouse, the so-called U-Boat Hall).

**Key words:** architectural and conservation documentation, conservation guidelines, colour pattern, adaptation of post-industrial monuments, Gdańsk Shipyard

### Streszczenie

#### *Interdyscyplinarne badania jako forma ochrony zabytków i przygotowania do procesu inwestycyjnego na przykładzie zespołu dawnej Stoczni Gdańskiej*

Wielowarstwowe dziedzictwo działających do końca XX w. zakładów przemysłowych stwarza szczególne wyzwanie dla konserwatorów, projektantów i inwestorów. W procesie ochrony jego wartości, eksponowania walorów i zarządzania dobrem konieczne jest szersze rozpoznanie przeobrażeń technologii całego zakładu i poszczególnych funkcji jego budynków, ale też kontekstu niematerialnego dziedzictwa. Przykładem złożonego zespołu zabudowy zabytkowej jest dawna Stocznia Gdańska. Tematem artykułu są interdyscyplinarne badania kompleksu stoczni, w trakcie których opracowano metodę badawczą bazującą na kilku skalach analiz (w relacji z miastem, zespołem i obiektem). Oparto ją na dogłębnym rozpoznaniu sposobu działania stoczni w latach 70. i 80. XX w. Tamten czas ze względu na strajki robotnicze na terenie zakładu i powstanie NSZZ „Solidarność” miał szczególnie wpływ na ukonstytuowanie się jej statusu jako dobra o wybitnych wartościach. Autorzy postawili sobie za cel zaprezentować wyniki szczegółowych badań zasobów kulturowych stoczni, do których włączono specjalistów branży stoczniowej historycznie związanych z tym konkretnym zakładem przemysłowym. W rezultacie powstały wieloaspektowe wytyczne konserwatorskie służące do wyznaczania ram ochrony zasobów kulturowych stoczni, prowadzenia na jej terenie prac konserwatorskich i inwestycyjnych (wzornik materiałów i barw). W podsumowaniu artykułu przedstawiono potencjał wykorzystania prezentowanego modelu badawczego w procesie projektowym na przykładzie obiektu przemysłowego przygotowywanego do procesu inwestycyjnego (dawny Magazyn Główny, tzw. Hala U-Bootów).

**Słowa kluczowe:** dokumentacja architektoniczno-konserwatorska, wytyczne konserwatorskie, wzornik kolorystyczny, adaptacja zabytków poprzemysłowych, Stocznia Gdańska



