

**RECONSTRUCTION OF THE RAILWAY STATION
BUILDING IN ŚWIEBODZICE AS THE AVANT-GARDE
OF THE MODERN RENOVATION.
ARCHITECTURE OF THE BUILDING SPACE IN THE
CONTEXT OF THE CREDIBILITY FEELING SPACE**

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Abstract

*The simulacrum is never that which conceals the truth – it is the truth which conceals that there is none. The, simulacrum is true.
Ecclesiastes [1, s.5]*

The social being, human, is a spatial creature whose habitation space is called the residential microenvironment. An architectural object is a *place* in a separate space. The *object-place* in space is formed in a variety of ways, but so that it can only be a framework for events, without a specific definition and manner of implementation. Architecture is a form of separating space and constructing it from material and immaterial components. Human as a being, a form of life, fills the behavioral space with his existence, carrying out activities on various levels. The Świebodzice Railway Station is an example of contemporary avant-garde in the field of renovation and modernization, adopted methods and solutions, moreover hides the *real* and *simulacrum* credibility of feeling the space of an object. The historical-interpretative methods, was used as research methods. The result was the development of the construction and executive design of the Railway Station.

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1. INTRODUCTION

As a consequence of their location in the city structure, proximity to important streets, the vicinity of parks and boulevards, railway stations constitute an important junction and symbolic city gates. The location and important public function made it possible to include station buildings in the city plan modernizations. The intensive development of the railway ended after World War II. The period in 1960s contributed to the destruction and dismantling of many railway structures. In the 1970s, the architectural values were appreciated again by implementing gradual modernization, conservation and transformation programs. A subjective assessment allows us to identify significant modernization of railway stations, such as Hamburger Bahnhof in Berlin, built in 1845-47 by engineer Frederick Neuhaus and architect Ferdinand Wilhelm, adapted in 1987 to the Museum of Contemporary Art. Gare d'Orsay railway station in Paris, built in 1898-1900 transformed into a museum in 1977 according to a design by Victor Laloux. Currently it contains collections of paintings, sculptures, applied arts, photography and graphics. In addition, the modernization of the Atocha station in Madrid, built in 1889-1891 according to the design of Alberto de Palacio Elissagne, completely modernized and extended in 1992 by Rafael Moneo as part of the Expo Exhibition in Seville and completed work by extending the station to comprise new terminals. The old part was transformed into offices, cafes and a shopping centre [7]. As an example of Polish modernization is the railway station building in Świebodzice, a building from 1869 designed by Carl Lüdecke (Fig.2). The track system of the Świebodzice station forms the letter "S" along the length of almost two kilometres (Fig.4), which makes the station one of the few and unique in the country located on the curve. The façade of the building is made of red facing brick. The building has two clock towers. Before the modernization, the station building was used by the railway and had premises with independent entrances for use and development, and also served as a residential building [9]. The Świebodzice Railway Station (Figs. 3-11) is an example of a modern avant-garde in the field of renovation and modernization, adopted methods and solutions, moreover hides the real and simulacrum credibility of feeling space. It's a place in a separate space, the interior is shaped in various ways, which makes the obviousness of space architecture in the context of the credibility of bidirectionally feeling. In the first case, the image of the shaped space reflects deep reality. In the latter case, the perceptible image of space conceals and distorts

deep reality. The mentioned criterion shows the behavioral aspect of the space inhabited in the historic structure.

2. PROBLEM

The article attempts to look at the current spatial structure of the railway station in Świebodzice according to the category of credibility in perceiving the architecture of the building space. Additionally, an analysis of the renovation works was carried out.

3. RESEARCH METHOD

This paper adopts an approach involving historical and interpretation analysis. In the initial phase, the analysis of areas, descriptions and scientific interpretation are done in the form of data collection. Interpretation of existing conditions is made to understand why such circumstances have occurred. In the final phase, the environment and analysis of selected elements subjected to renovation was carried out. The historical and interpretative method provided information about the design works carried out as part of the reconstruction of the building. Analysis performed in an environment enabled the research to be focused on interpretation, the meaning and implications of the data. Research techniques included descriptions, explanations, author's interpretation, local inspection and extensive architectural documentation [6].



Fig. 1. Bird's eye view after renovation and modernization, [photo credit: author, 2021]

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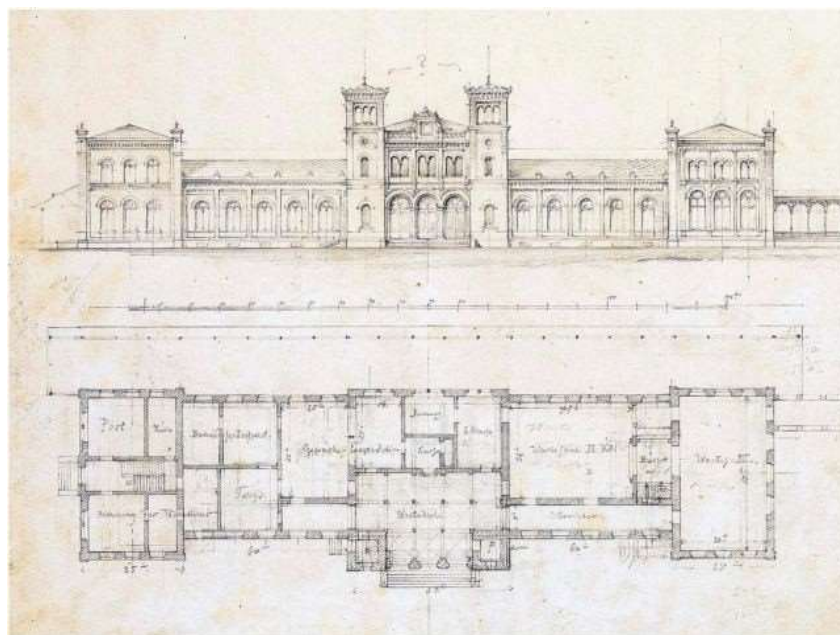


Fig. 2. South-west elevation and ground floor plan, drawings Carl Lüdecke, 1868, [10]

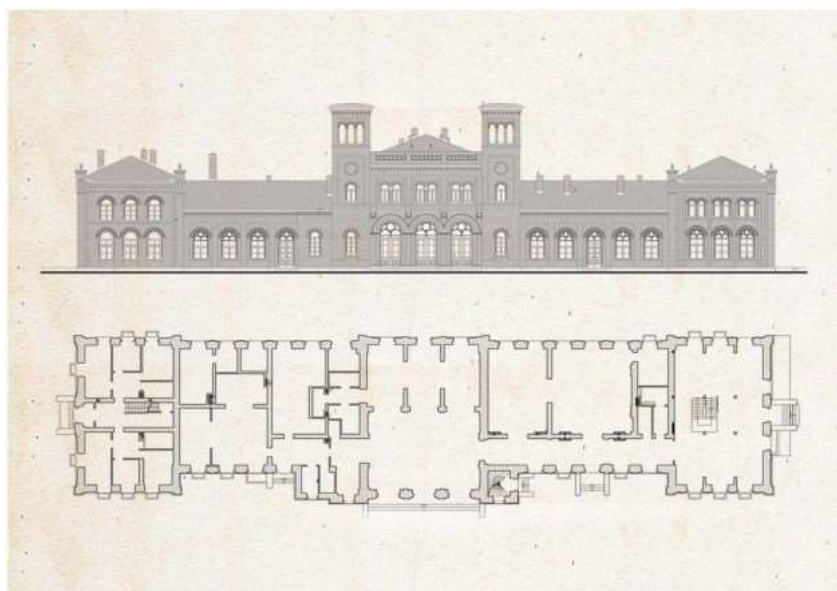


Fig. 3. South-west elevation and ground floor plan, drawings DOMUS, author, 2011, [9]

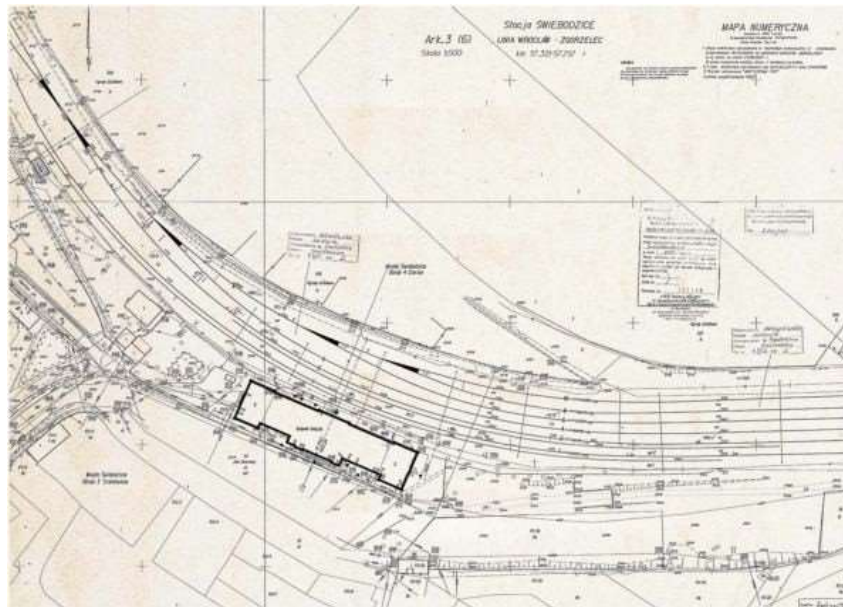


Fig. 4. Location of the station, visible curved track system, drawing DOMUS, author, 2011, [9]

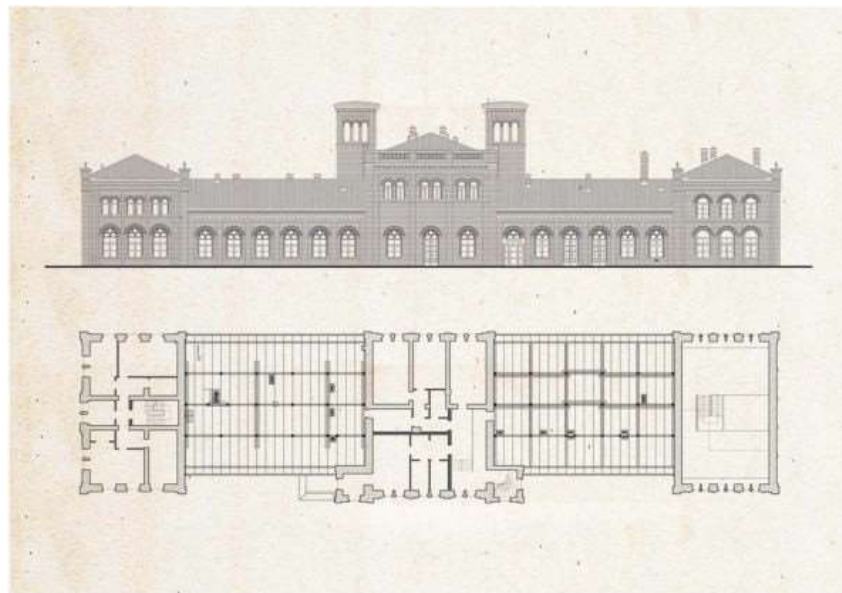


Fig. 5. North-east elevation and first floor plan, drawing DOMUS, author, 2011, [9]

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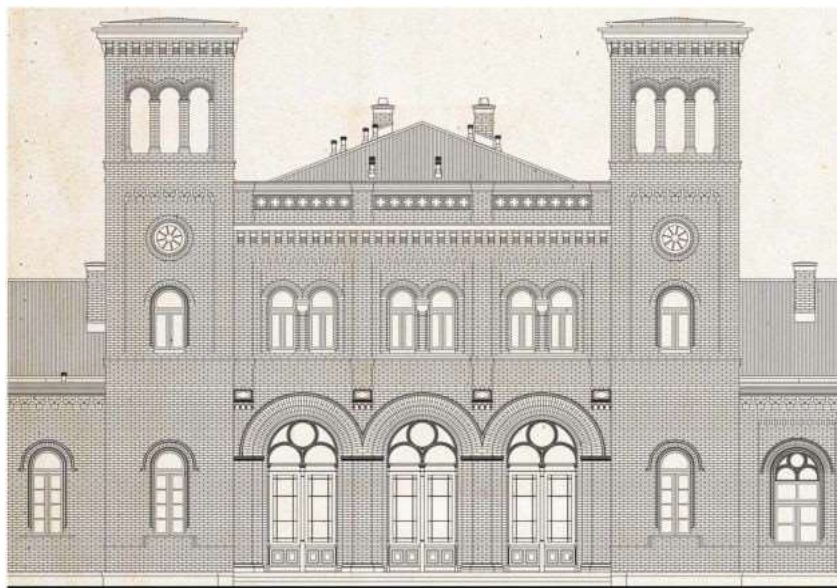


Fig. 6. South-west elevation, main entrance, drawing DOMUS, author, 2011, [9]

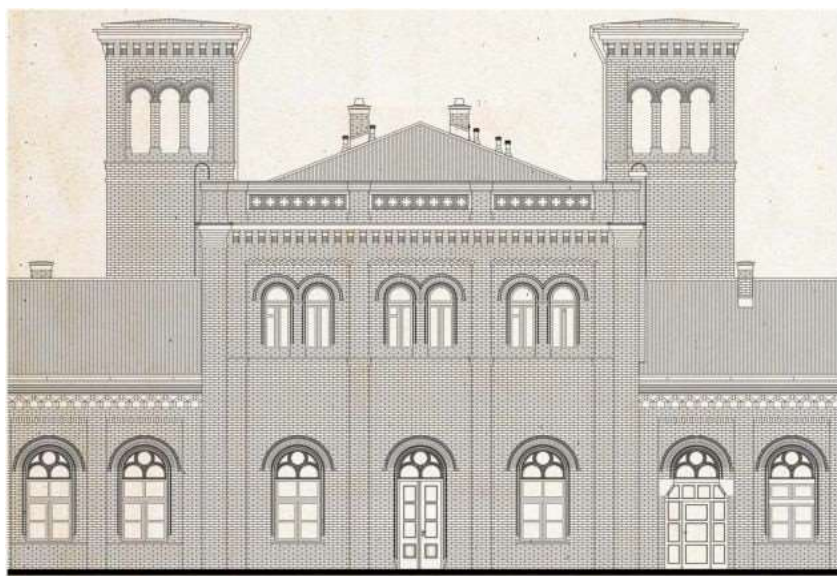


Fig. 7. North-east elevation, platform entrance, drawing DOMUS, author, 2011, [9]

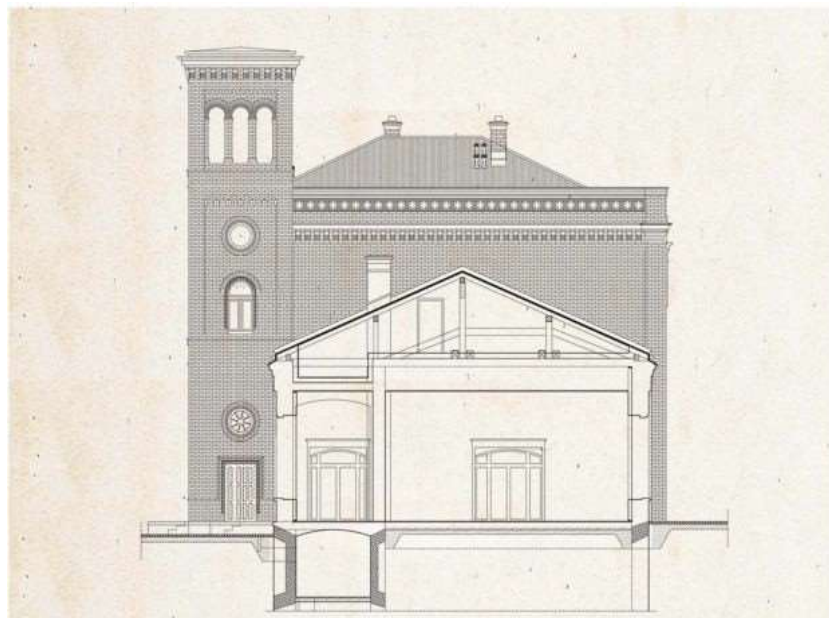


Fig. 8. Cross-section through the service areas, drawing DOMUS, author, 2011, [9]

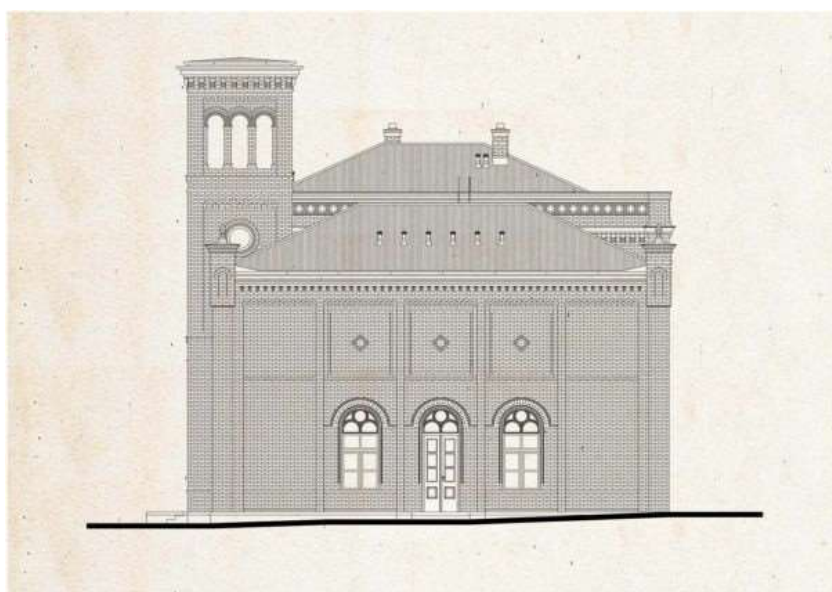


Fig. 9. South-eastern elevation, drawing DOMUS, author, 2011, [9]

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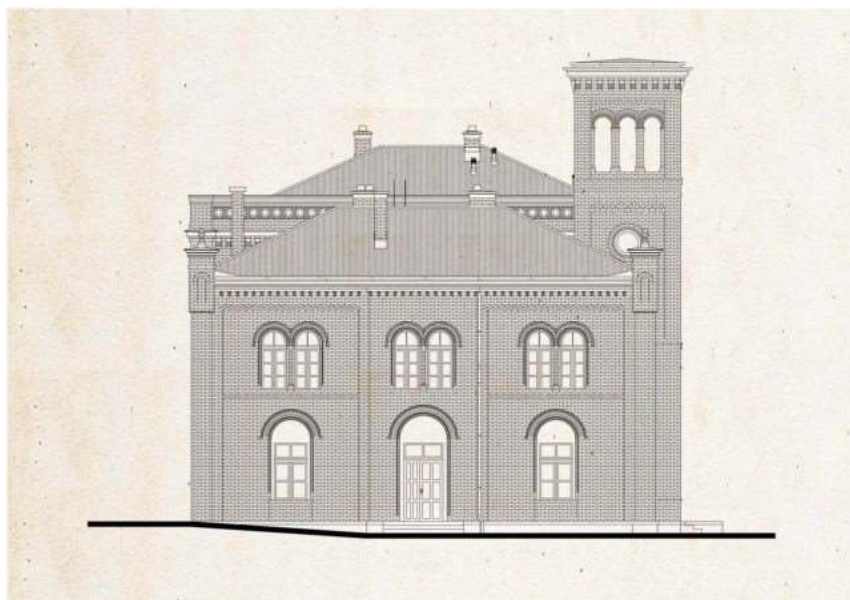


Fig. 10. Cross-section through the main hall, drawing DOMUS, author, 2011, [9]

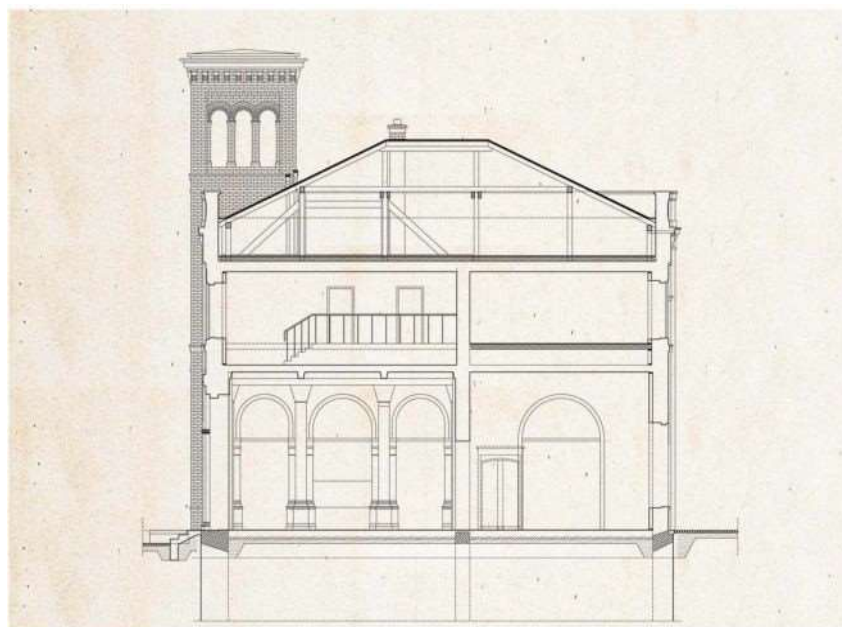


Fig. 11. North-west elevation, drawing DOMUS, author, 2011, [9]

4. ANALYSIS OF THE SCOPE OF WORKS

The inclusion of historic buildings formally identified on the list of monuments, whose technical classification contains a note that their condition is second class, means that they are in a moderate condition, require overhaul, repair of damage and adaptation of the object to new technical conditions and standards. The renovation works of the analyzed building were carried out and completed in 2019, on the 150th anniversary of the construction of the station. The technical condition outside the building demonstrated numerous damages of the stoneband around the building. The façade of solid brick walls required the removal of the previous painting of the building with largely damaged acrylic paint. The technical condition of gutters, downspouts and roof tar paper was identified as poor. The technical condition inside the building was also unsatisfactory. Brick, barrel-shaped ceiling above the basement, largely damaged by fungi and molds due to moisture - water standing in the basement storey. Above the ground floor, the timber-beam ceiling was damaged by insects, fungi, mold and bacteria. The wood of the roof structure (with visible impregnation) indicated damage in some places by insects (*Anobium punctatum*) and (*Hylotrupes bajulus*). The damage caused by fungi was visible in places of prolonged moisture i.e., places where the floor beams rest on walls, at chimneys and on surfaces of full roof boarding. Household (*Serpulalacrymans*) and cellar (*Coniophora cerebella*) fungi occurred in places characterized by excessive and prolonged moisture caused by leaking water from roof hatchways. Functionally, the facility has been divided into three functional zones. On the ground floor, the first zone intended for the needs of the railway included the following rooms: the main hall, communication, a toilet for men, women and the disabled, a ticket office and railway telecommunication room. The second type of facilities included an area designed for services. The third zone included two dwellings with an independent entrance from the north-west side of the building, with the following layout of rooms: communication, kitchen, bathroom and two rooms. The first floor contained the third type of functional area, i.e. dwellings. The first apartment with access through a staircase on the ground floor on the north-west side with the layout of the apartment rooms: communication, kitchen, bathroom and four rooms. Two more apartments with an independent staircase, accessible from the front elevation. The first apartment includes: communication, kitchen, bathroom and one room. The second apartment includes: communication, kitchen, bathroom and two rooms. The basement floor was functionally unchanged [9]. The building of the railway station in Świebodzice is entered in the municipal register of monuments, to commencing any design work, the facility was fully subject to the following conservation guidelines:

Guidelines of the conservator of monuments:

- Renovation with preservation and maintenance of brick façade claddings.
- Reconstruction of the roofing.
- Replacement of wooden joinery with the reconstruction of divisions and profiles, colors determined by the open-pit method on old joinery, approval of the use of combined windows.
- It is permissible to alter the functionality of parts of the facility, to a small extent to change the window openings into the door, the joinery of new openings should be designed by analogy to the historical one.
- Leave and secure the cellars of the facility.
- The main layout of the main interiors in the building should be kept and their décor exposed.
- Newly designed elements should be designed in a form appropriate to the character of the station [9].

The analysis of the design, renovation and construction works carried out required a thorough analysis and synergistic cooperation with the investor, authors of individual construction industries and the monument conservator (Provincial Office for Monuments Protection in Wrocław, Branch Office in Wałbrzych).

The scope of the planned works in the building:

- Vertical insulation of foundation walls, including their drying;
- Horizontal insulation - anti-moisture diaphragm in basement walls;
- Renovation of facades and architectural details;
- Replacing the window joinery with energy-saving wooden one;
- Replacing the wooden door joinery;
- Renovation of wooden entrance doors to the hall of the station building;
- Renovation of the surface of stone entrance stairs;
- Carrying out the building insulation;
- Internal thermal insulation of the building with the Renovario panels [9].

The scope of the planned renovation and construction works of the roof:

- Cleaning works - cleaning the facility;
- Execution of roofing;
- Protection and repair of the roof structure with the replacement of damaged, destroyed and mouldy roof structural elements;
- Replacement of sheet metal elements of the planking roof, gutters and downspouts;
- Demolition of chimneys;
- Building new chimneys;

- Installation of roof hatches and chimney benches;
- Re-bricking of the most technically degraded wall fragments under the walls or within the walls [9].

The scope of other planned renovation and construction works:

- Demolition parts of brick partition walls;
- Demolition some structural brick walls;
- Dismantling partition walls with a semi-timbered structure;
- Replacement of ceramic tiles;
- Building partition walls;
- Replacement of installations: electrical, water, sewage, rainwater, gas, lightning protection, monitoring;
- Execution of gas heating installation.;
- Protection of cellars;
- Adaptation of the facility for the disabled and construction of a granite block around the building for disabled people [9].

5. ANALYSIS OF RENOVATION WORKS

Facade renovation:

The façades of the building are made of red face brick, which has been painted with acrylic paint. Due to improper use of the building i.e., leading to dampness in the building, the façade was degraded, the paint peeled off and bricks fell off. The scope of the damage is shown in the pictures (Figs.12,13).

Repair work:

- Cleaning (grinding) old, damaged paint coatings from the surface of a brick facade.
- Drying and insulation of the wall with the method of hydrophobic blockades.
- Reconstruction of brick threads in places being rebuilt and supplementing or replacing bricks in the places of any defects and gaps in the facade.
- Repair of damaged architectural details.
- Replacing the joints in the wall.
- Hydrophobic impregnation of the brick façade [9].
- The facade before renovation is shown in Figs.11,12. The façades after cleaning and renovation are presented in Figs.13,14.

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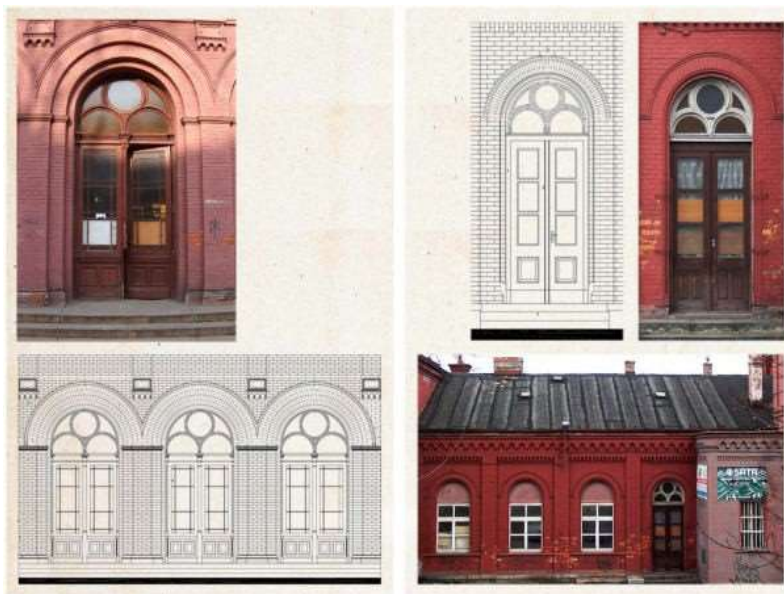


Fig. 12. Details of windows and doors inventory, photos and drawings credit: DOMUS,
author, 2011, [9]

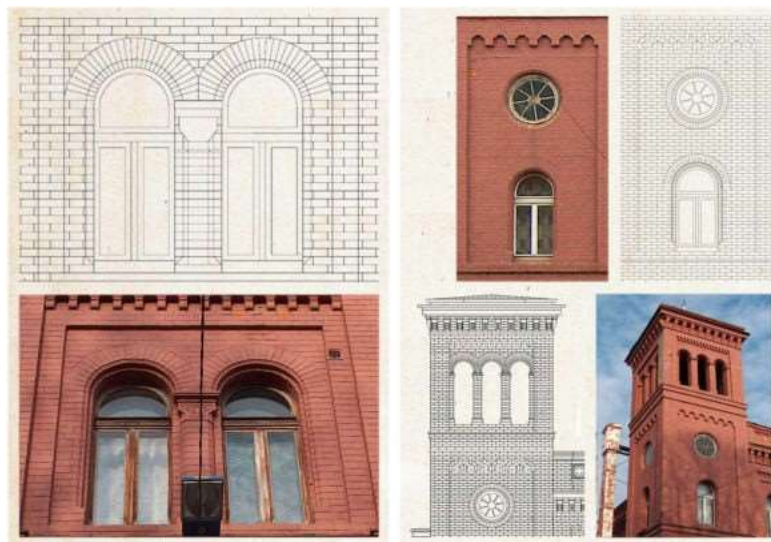


Fig. 13. Details of windows and inventory, photos and drawings credit: DOMUS,
author, 2011, [9]

Building insulation and inside drying:

Due to the high level of moisture in the building, the schedule of repair work involved drainage and insulation by hydrophobic blockages. The system did not introduce any additional harmful salts into the walls, it has conservation references.

Technology of creating a horizontal hydrophobic blockade:

- Drilling holes at an angle of 15 - 20 ° in the horizontal direction. Hole diameter 18 mm or 25 mm. The spacing of the holes depends on the thickness of the wall (about 10-15 cm on average);
- Filling the air voids with cerinol bsp filling mortar;
- Introduction of Adexinhs 2, a hydrophobic, solvent-free silicone microemulsion concentrate into the holes by gravity or low-pressure injection using pumps (e.g., membrane pumps). Both Cerinol bsp filling mortar and Adexinhs silicone microemulsion injected through the same boreholes and packers [9].

Internal insulation of the building:

Renovario climate panels were used for internal insulation of the building. Renovario climate panels are employed in buildings where it is impossible to use external thermal insulation, and in historic buildings made of clinker bricks, stone and with decorative facade elements. Due to its good activity and capillary permeability of steam plate, the humidity or indoor air is automatically adjusted and keeps it at a constant level. The climatic plate eliminates the appearance of mould and fungus. It is used in the area of fire protection as thermal insulation of rooms and serves as an insert for doors and partitions. The board is also used for thermal insulation of ventilation ducts and fireplaces [9].

Cleaning stone surfaces:

The cleaning of the stone surfaces included steps and stone pedestals by pressure washing. Cavities filled by flaking (larger cavities) or with a sandstone-based mortar. Subsequently, it was primed with a preservative [9].

Complete the facade

Damaged bricks, depending on the degree of destruction, were repaired or replaced mainly in the places where they were later walled up. The bricks were replaced by manually forging damaged bricks and inserting new ones. Moreover, the joints in the wall were replaced. The inlayed brickwork in places exposed to constant contact with residual water is adequately protected by flashings, or by applying flexible and tight insulation layers.

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Fig. 14. Bird's eye view after renovation and modernization, photo credit: author, 2021



Fig. 15. Bird's eye view after renovation and modernization, photo credit: author, 2021

6. SPATIAL STRUCTURE ANALYSIS

Building space provides the feeling and perceiving of a state of credibility in the external architecture of the facility. The hyper-reality of a state and place in space is a way of defining the perceived architecture. The example adopted for this study demonstrates the impression of the case forms a sign [5]. The first case demonstrates a real space, reflecting reality in a natural way, clearly assigned to the function of an architectural object. The second case is a space that distorts deep reality, the external image of the object does not define the signs unequivocally [5]. The reflection of deep reality classified by Jean Baudrillard conceals and distorts deep reality, hides the absence of deep reality and is not related to any reality, being *simulacres*, so called *pure simulation* [1].

The railway station building analyzed in the context of a materially designated place and designed for the function, supposed to fulfil - constitutes a *real space* within the function intended for the needs of the railway. The second case shows the form of the architecture of the building, in which the activities determining the condition of the apartment have no relation to the surrounding reality, being simulacres, *simulacrum space*, it is evidenced by the internal functional division with adaptation to the needs of services and residential premises. It shows the way of constructing space in a multi-directional and unconventional way with an individual approach during the design process.

Moreover, the project offered better quality of premises and functional conditions. It assumed the reconstruction of the rooms on the ground floor and first floor. The ground floor has been divided into three functional zones. First this applied to needs of railway activities, secondly for service needs and third for residential premises. Architecture of the building space in the context of the credibility feeling space is as follows (Fig.16): *real space* used for the needs of the railway (on the ground floor), *simulacrum space* intended for services (on the ground floor) and residential premises (on the ground floor and first floor).

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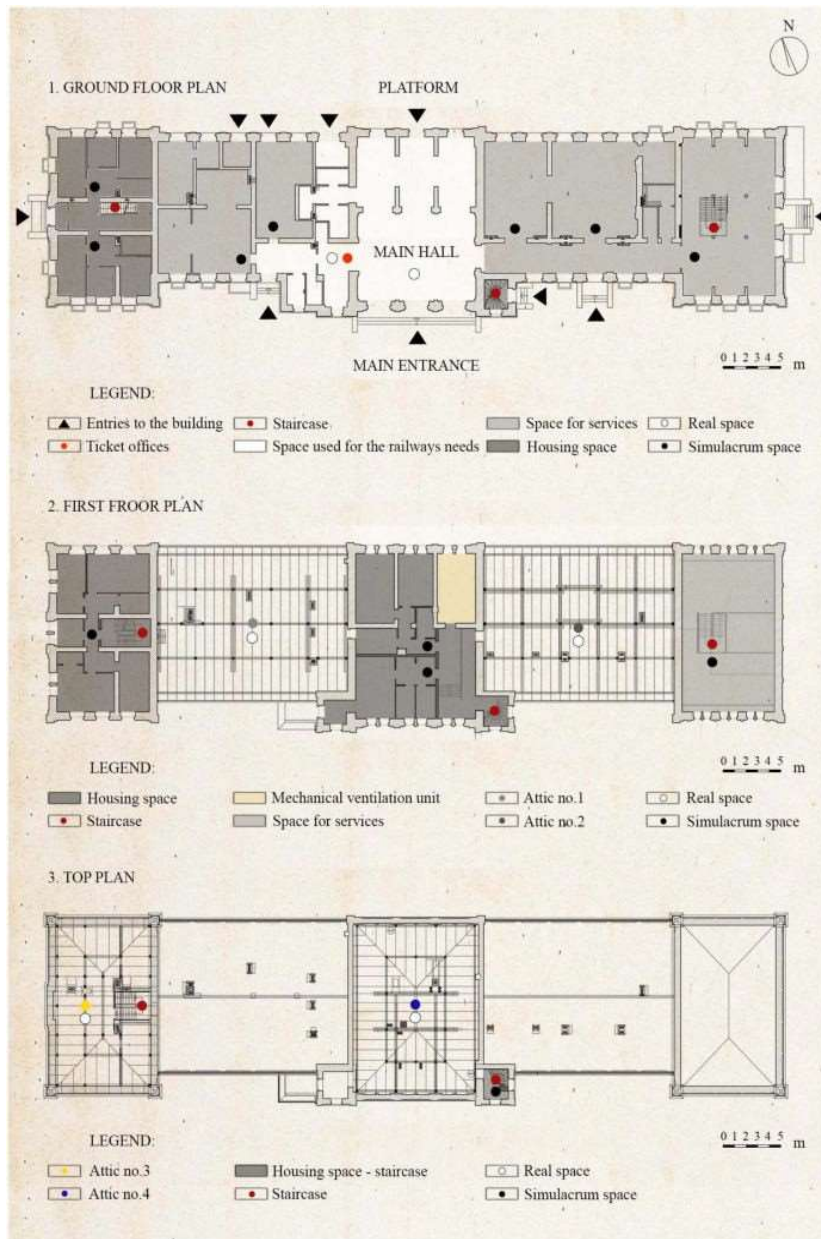


Fig. 16. Analysis of the space of the railway station building, 1-ground floor plan;
 2-firstfloor plan; 3-top plan, study results

7. CONCLUSIONS

The formation of an architectural building space is determined by a number of activities, methods and goals defined in terms of the context of psychological, sociological, technological, technical, economic or legal and conservation aspects. A form of synergy occurs between the humans and the place of being at all levels. Constructing a place gives the possibility of new conditions for understanding activities in space in the context of activities that determine the state of inhabitation. The separation of the space defined by Bruno Zevi may take place physically (materially) or non-physically (intangibly) [8]. Research in this area demonstrates that dwelling is shaped in two dimensions, the first dimension defines dwelling as a place, the second dimension defines an apartment as a state determined by a set of activities, the so-called state of residence. The understanding of living as a place relates to the assumptions of designing a place, while the understanding of living as the state of an apartment refers to designing a set of activities that define the state of living [5]. This example of undeniable historical, aesthetic and cultural values, as a result of the cooperation of a wide group of specialists, offered the way in which the historical heritage of the place could be preserved, shaping the space of living in a *real* and *simulacrum* manner. The results demonstrate that the purpose of separating space is to create a place that meets the criteria of Wojciech Bonenberg's classification in the context of the types of space that develop its brand space:

- space that evokes fear,
- space that generates anger,
- space that evokes distaste or fear,
- space that generates depression,
- space that creates a sense of pleasure, joy,
- space that evokes delight (excitement),
- space that raises hopes (optimism),
- space that calms down,
- space that arouses boredom,
- space that arouses interest (curiosity). [3,4]

The designed space before renovation works evoked fear and anger. The modernization process caused a return to delight, a sense of pleasure, joy and curiosity. The design works built a new brand of the place, saving the historical heritage of the region. Moreover, a revitalization and modernization of Świebodzice railway station building has been appreciated by the editors of the Onet portal, being among the fifteen most beautiful railway stations in Poland.

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