

## **RENOVATION AND MODERNIZATION OF RESIDENTIAL STRUCTURES IN GLIWICE BASED ON SURVEY OF THE ENVIRONMENT BUILT FROM THE YEARS 1848-2014**

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### Abstract

The subject of the survey carried out in 2013-2014 are changes in Gliwice residential substance in relation to the two fundamental issues: how proceeded transformation of the existing housing stock, which changes has it undergone during operation. The range of changes within the housing illustrates all the positive and negative solutions characteristic for each of the periods. In the selection of research technique decision was made to form the survey. The quantitative data collected during the survey are the basis for building applications and also from grouped and developed characteristics for the surveyed collections. The test results help to identify regularities concerning the scope of the changes made in each period and - indirectly - give evidence to evaluate the built environment in terms of meeting the expectations and needs of the residents. Analysis of the assumptions also draws attention to the life cycles of the apartment, as the original part undergoing transformation during the adaptation, modernization and reconstruction of housing environment to changing needs during operational requirements. The scope of the changes introduced by them within the housing allows to evaluate the accuracy of functional and spatial, technical and technological solutions characteristic of the period in which they developed.

Keywords: housing resources, Górny Śląsk, modernization, renovation, survey

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## 1. HISTORICAL BACKGROUND

### 1.1. Upper Silesian umbrella housing estates and development of working-class settlements (1848-1919)

Since the mid-nineteenth century umbrella housing began to be an integral part of the landscape of almost all rapidly growing industrial regions of Europe. Upper Silesia - as one of the greatest of them - also began to characterize this type of architecture. The umbrella housing estates gave in many cases the origins of industrial settlements - the later Upper Silesian cities. Buildings called "familoki" to the present day are identified with housing: Zabrze, Silesian Ruda and Katowice. In Gliwice can be found some examples of patronage housing estates (working-class development). One of the oldest buildings of this period is the development of working colonies of Royal Steelworks (Königliche Hütte) completed around 1850, next to the Workers and Baildon streets. Houses located directly by the factory were inhabited by engineers and senior staff of the smelter. While the compact "familoki" building at the end of the street (originally called the Colonie Street, renamed later to Kalide Street) was realized in the second stage and was intended for other workers and their families. Another assembly housing was - dating from the years 1892-1894 - a colony of 52 semi-detached houses with gardens namely- smelter housing for workers of Hulschinsky Works (later Steelworks of 1st May), located at reaching of the small streets: Chorzowska, Ida Gajda and Linde. In the years 1911-1912 there was developed residential project for Oberschlesische Eisen-Industrie AG located on both sides of newly-charted Przemysłowa street. It consisted of several multi-family buildings, with the same sizes and views. Interesting housing unit is a group of seventeen residential multifamily buildings completed in 1913 nearby Bienka street. Establishment known as "An Der Waldschule", originated from location of street surrounding the school building and the adjoining pitch. The buildings have similar sizes, and some projections are repeated (a total of five types solutions can be distinguished). For many of Gliwice examples of working building, one cannot find the data on its development as well as the association with industrial plants. These include three "familoki" buildings nearby Zabrska street, compact multifamily unit at Chorzowska street (between Akacjowa street and Dębowa street) or development of six "familoki" buildings at Modrzejewska street. With all of the mentioned, there also survived farm buildings - the so-called pigsties, often originally designed for pigeon houses. Particularly distinctive housing assembly is a compact peripheral building development erected at St. Marek street and reaching the streets of Gen. Zajączek and Rolna. Its aesthetics and spatial

planning (gate crossings) refer somewhat to Nikiszowiec estate in Katowice. For particular one can also be considered a complex of three multifamily buildings at Pszczyńska Street for employees of Consolidirte Gleiwitzer Steinkohlen Grube (KWK Gliwice). Buildings made in the years 1915-1917 designed E. and G. Zillmann - architects known for Katowice implementation of settlements Nikiszowiec and Giszowiec. In all the examples it is noted the tendency to repetitive solutions (standardization of building blocks, projections, carpentry, etc.).

## **1.2. Buildings in the years 1919-1945**

In the years 1919-1945 the position of stadtbaurat (chief architect of the city) took Karl Schaik. During his tenure, and thanks to his efforts, master plan of the spatial city development was designed with particular emphasis on areas of housing. The plan included both- spatial situation and introduced uniformly localized residential units, culling from the interpretation of the Howard ideas of garden-cities. Housing in the years 1919-1945 should be divided into the downtown and residential buildings of multi-family homes located within distance from the city center. In the first distinguished group ranks development of Pilsudski Square (by the K. Schaik), and - realized in the classical mainstream - most of the corner buildings of the main streets: Daszyński, Sobieski, Czestochowa, Miarek, Poniatowski. Development of the influence of expressionism and Neues Bauen represents building development of Piramowicz street. The Neues Bauen style was accomplished in case of multifamily housing in the streets: Poniatowski, Wolski, Chodkiewicz, Witkiewicz and Tarnogórska. Another group consists of residential realized over the entire city. Ranging from small units within the small street - streets: Daszyńskiego, Rybnik, Gdansk, often with little squares of green - streets: Akacjowa, Owsiana, Sowiński, Szczepanowski, Olszynek, to units on the outskirts of the city - the streets: Dzierżoń, Glowacki, Royal Dam, Chodźki, Szybowa, Fick. Particularly noteworthy are the large estates realized based on the propaganda poll in Upper Silesia. Now, on the border of the city (in favour of connecting to the Weimar Republic) with the districts (in favour of joining the Republic): Rybnik on the south and Tarnogórski on the north, two large settlements were completed: Süd (South) (streets: Rybnicka, Olchowa) and Nord (North) (streets: Tarnogórska, Koraszewski, On the Connection, Przynicznyński, Kossak and Wit Stwosz) with very diverse architectural detached houses. The largest and most prestigious residential complexes representing the German interpretation of the garden-city had to be GAGFAH estate located at the streets: Mała, Długa, Prus, Skarga, Damrot, Norwid, Sobieski, Oleśnicki with two urban dominants (landscape) in the form:

Mickiewicz street with lime trees planted around, and the well-enclosed square On The Hill.

### **1.3. Buildings in the years 1946-1989**

One of the first examples of residential buildings executed after 1945 should be the buildings of Łabędź centre by the streets: Wolność, Marks, Majakowski, Tuwim, Wieniawski, Gałczyński, Partyzanci, Róża Luksemburg, Batory. In fact, it was the unit, whose construction was initiated in the early 40s of last century, but a final shape was given after the end of hostilities. The reconstruction of the old town of Gliwice, based primarily on reconstruction in the spirit of the historic Market also dates back to the first years after the war. Since the 70s, one recorded a sharp increase in architecture of big slab and the emergence of high-rise buildings. There came into being: estate of Zubrzycki I-IV, estate of Żeromski I-IV (in Sośnicy), estate of Mine Rescuers, estate of Kosmonaut (Łabędy - Przyszówka), estate of Mount Chełmska, estate of Operetka. Within Gliwice districts, one filled the gap area of big slab with tower blocks and apartment buildings - examples are blocks of streets: Pszczyńska, Chorzów, Okrzei, Toszecka, Dziewianna, Warszawska and others. In the '80s decisions were made on the construction of single-family housing units. They were formed among others as settlements: Podlesie, Rogoziński, Podlesie II Sikornik, the Silesian Insurgents II and III, Przyszówka, Polna - Bernardyńska, Defenders of Peace, Kosmonauci II, Literaci I and II, Brzozowa and Czechowice.

### **1.4. Buildings after the year 1990**

After 1990 in Gliwice, one implemented many units of multifamily and single family. One of the first multifamily housing units after 1990 was the residential complex at Gwarki street. Similar in its architectural expression was the unit at Nowy Świat street and Kochanowski street. Housing Sikornik completed and extended by terraced buildings of Żuraw street, Czapla street, Orły street and other (still ongoing). Housing Waryński was supplemented by new buildings at ul. Gomółka and Żabinski and implemented on the western side of the Żabinski street - residential Bajkowe by the streets : Bajkowa, Kon, Dekabryści, the Brothers Grimm, Hans Christian Andersen. Single-family housing buildings dating back to the streets in areas of wasteland: Glowacki street(Wójtowa Village), Zielone Wzgórza street (Ostropa), streets of Old Gliwice: Bursztynowa, Srebrna, Platynowa, Złota, and Diamentowa, Szmaragdowa, Chemiczna, and Skalski street and Willowia street. Until the moment continues the building process of western district of Żerniki detached houses (of various types)among others streets: Chałubiński, Strzelecki, Domeyko, Grodecki, Rogoziński, Dybowski, Czekanowski, Czerski, Kukuczka and Czok. An

example of the closed housing estate closed is Garden City in the area of the intersection: Kozielska, Łabędzka. An interesting form of residential buildings are also Gliwice lofts - meaning, industrial buildings and the former barracks buildings, adapted for residential purposes between the streets: Zygmunt Stary, Zawisza Czarny and Kazimierz Wielki.

## 2. THE SURVEY

The concept of modernization - in technical terms - measures to modernize and streamline anything, increase of the usage value of an existing element. In terms of architecture and construction, concept has many interpretations. Most often this term defines works connected with an increase in aesthetic and functional values of the building. An important factor of modernisation is to take into account the need to transform resulting from a change of originally existing pattern to subject of the current tastes or expectations of users. Modernization is also a modernization of fixed capitals, aimed specifically to increase the utility value (e.g. the implementation of works in the building through the introduction of new installations or improving existing ones).

Inventory of modernization was based on the authorial Survey. Modernization has been presented in terms of the three specified groups of changes carried out on studied housing stock: technical, aesthetic features and changes. Analyzed technical changes include replacement, repair, or an introduction to the installation of residential units (electrical, heating, plumbing, ventilation - air conditioning, telecommunication, and changes in the structure of originally designed spatial structure. Changes of function include the transformation of functional systems originally designed rooms or zones, namely: separation, merger, exchange, addition and elimination, both in total and fragmentary extent. The last group defines the aesthetic changes within utilized residential premises space. These included: replacement of doors and windows, painting walls, replacement (or repair) of floors, and changes associated with the transformation of balconies, terraces, replacement (or repair) of roofing and renovation of the facade. The choice of the above-listed for modernization, as well as its transferring to the three main subject groups also decided clear and basically undisputed for ages trisection of the Vitruvian architecture. According to Witruwisz, architecture is to maintain the three principles: sustainability (Firmitas), utilities (utilitas) and beauty (Venustas).

**2.1. Profile of the respondent.**

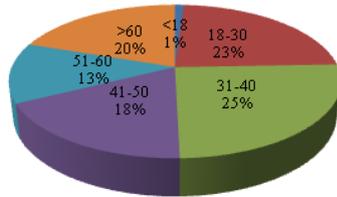


Fig. 1. Age of the respondent of the local

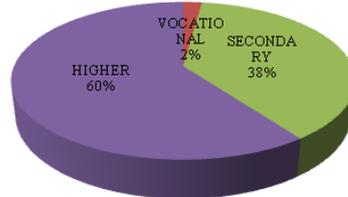


Fig. 2. Education of the respondent of the local

**2.2. General data of the studiem sample**

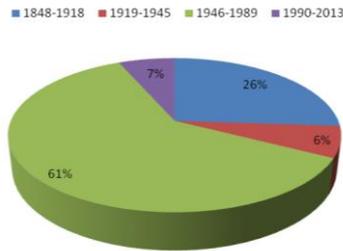


Fig. 3. Age structure of the sample

Have you changed your residence in the last 10 years?

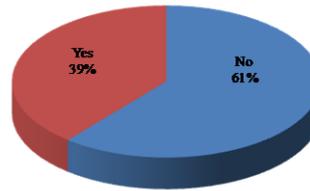


Fig. 4. Period of residing

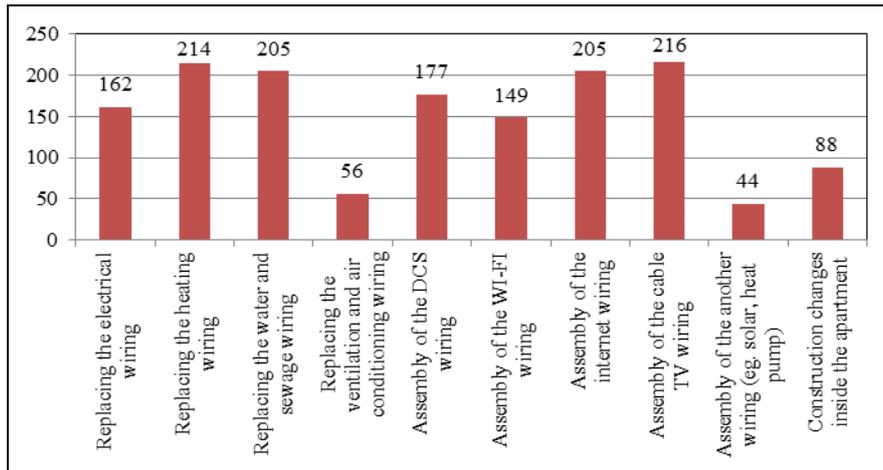


Fig. 5. Technical changes

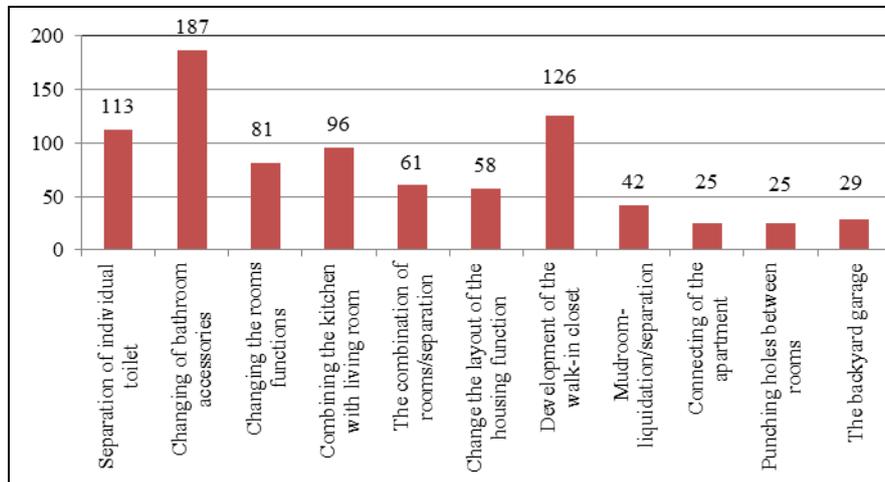


Fig. 6. Functional changes

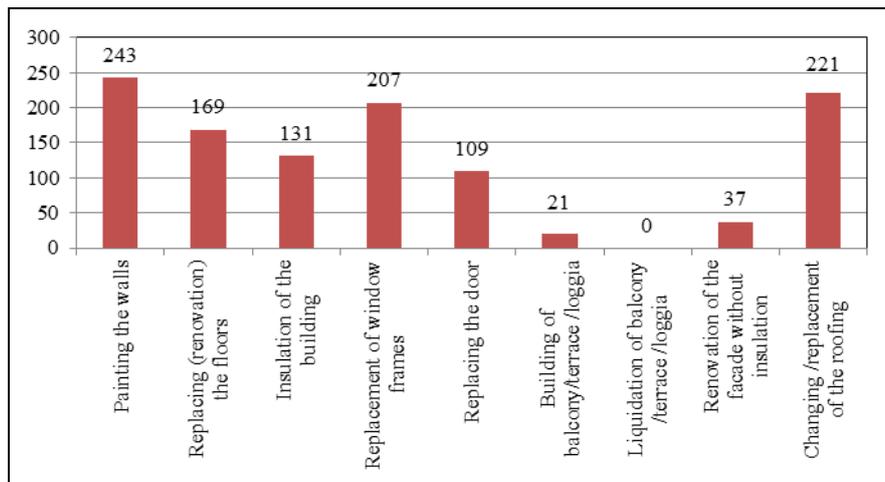


Fig. 7. Aesthetic changes

### 3. CONCLUSIONS

With regard to the technical changes, the attention is on the amount of exchanges, in particular the electrical, water and sewage installations in the years 1946-1989. In older times, obvious seems to be the technical wear and modernization within the functional changes. Also, changes in ventilation can be explained by the same fact of technical wear of older objects. The functional changes dominate the changes made in the sanitary area of housing, which is

related to archetypes in the given period of place construction or improper appointments or functional layout. Separation of its own toilets applies to housing in the years 1848-1918 where toilet was often located outside the building, or in later years on the landing. Changing the functions of rooms, as well as connecting chambers also apply to units of this period, due to the low standard of the space resulting from the use of the premises for incoming rural population to urban areas at the time, due to the development of heavy industry. In the aesthetic changes dominate: replacement of doors and windows and sheathing, possibly replacing roof covering. Inside the units most often one has to deal with the normal work associated with consumption of technical layers, so the renovation of floors and painting the walls of the apartment. Also, the action on the facade of the building appear to be resulting from normal use of the premises and the increasingly stringent thermal parameters posed on residential places, according to the energy efficiency policy of the whole economy.

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## RENOWACJA I MODERNIZACJA STRUKTURY MIESZKANIOWEJ W GLIWICACH NA PODSTAWIE BADAŃ ANKIETOWYCH ŚRODOWISKA ZBUDOWANEGO Z LAT 1848-2014

### Streszczenie

Przedmiotem badania przeprowadzonego w latach 2013-2014 są zmiany zachodzące w substancji mieszkaniowej Gliwic w odniesieniu do dwu zasadniczych kwestii: jak przebiegała transformacja istniejących zasobów mieszkaniowych, jakim zmianom została ona poddana w czasie eksploatacji. Zakres zmian w obrębie mieszkania ilustruje wszelkie pozytywne i negatywne rozwiązania charakterystyczne dla każdego z badanych okresów. W doborze techniki badawczej zdecydowano się na formę badania ankietowego. Dane ilościowe zebrane podczas badań ankietowych są podstawą do budowania wniosków i też z pogrupowanych i opracowanych cech charakterystycznych

dla badanych zbiorów. Wyniki badań pozwalają wskazać prawidłowości dotyczące zakresu dokonywanych zmian w poszczególnych okresach i – pośrednio - dają przesłanki do oceny środowiska zbudowanego pod kątem spełnienia oczekiwań i potrzeb mieszkańców. Analiza przedstawionych założeń zwraca również uwagę na cykle życia mieszkania, jako elementu pierwotnego ulegającego transformacji podczas adaptacji, modernizacji i przebudowy środowiska mieszkaniowego do zmieniających się w czasie potrzeb użytkowych. Zakres wprowadzonych przez nich zmian w obrębie mieszkania pozwala ocenić trafność rozwiązań funkcjonalno-przestrzennych, technicznych i technologicznych, charakterystycznych dla okresu, w którym powstały.

Keywords: zasoby mieszkaniowe, Górny Śląsk, modernizacja, renowacja, ankieta

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