The process of building the Central Industrial Region (COP) was preceded by a period of intensive investments aimed at improving the living conditions of the citizens of the reborn state. The period from November 1918 until 1922 can be described as the time of building the economic basis of new Poland. It was during this difficult time that the administration and army were created from scratch, provision control was organized by the state and the agriculture and industry were reconstructed after the war destruction. The basis for the state development policy was formed. New migration processes from rural areas to cities occurred. Despite all these activities, not all the regions of the state developed equally. The first problems with the balanced level of life on the whole territory of Poland began to appear. The basic components of a change in the image of Poland were the agricultural reforms and the reconstruction of the Polish industry. The year 1923 can be treated as the end of the postwar industrial reconstruction. The years of hyperinflation slowed down these reconstruction processes, but very soon a stabilization was achieved due to the fiscal reforms. In 1927 the government exempted the enterprises created or developed in Gdynia harbor from taxes and fees. In 1928 Poland reached the highest level of the industrial production and the lowest unemployment.

The successful development of the country was interrupted by the world economic crisis which appeared in Poland in 1929. Starting from 1932 we can observe a gradual growth in factory production whereas after 1935 there was a visible acceleration in production.

After the experiences of the Polish-Soviet war, in 1921 General Kazimierz Sosnkowski came up with the proposal to locate the Polish arms industry in the so called security triangle, i.e. in the area of Sandomierz in the forking between the Vistula and San rivers. The years 1923–1929 saw the newly erected arms industry plants on the areas of the Old-Polish industrial region (Skarżysko, Radom, Starachowice, Ostrowiec Świętokrzyski, Pionki).

In 1928 the concept of creating the central industrial region was taken up again. It was then that special tax reliefs for the enterprises created and acting in the so called security triangle were granted. The COP was divided into three regions: ‘A’ – Kielce resource region, ‘B’ – Lublin provision region, ‘C’ – Sandomierz processing region – the area in the forking between the Vistula and San rivers. The planned borders of the COP underwent some changes and finally they included forty four counties within the area of four districts: Kielce, Kraków, Lublin and Lvov and comprised them only partially (Fig. 1, see p. 156) [2, 6].

Location of the COP resulted from a relatively great geographical distance from Germany and USSR as well as from the willingness to eradicate the geographical differences between the territories of west and central Poland (the so called Poland A) and under-developed territories of east and south Poland (the so called Poland B).
The area of the region comprised 15% of the country’s territory and 18% of the population. This idea could not be quickly carried out due to the world economic crisis.

Its implementation was not possible until 1937 when a new Treasury Minister Eugeniusz Kwiatkowski was appointed. Poland had to develop its own industrial sector because only thanks to the own modern national industry was it possible to provide the army with the necessary technical equipment as importing the arms always depended on the international political situation; on the other hand, it was necessary to create working conditions for the young people who were growing in number and solve unemployment problems in towns as well as problems with rural agrarian overpopulation. Therefore, new workplaces were constantly in great demand.

Eugeniusz Kwiatkowski prepared a four-year economic plan comprising the period from 1936 to April 1940, which assumed the funding of investments mainly in the scope of the infrastructure.

Within the framework of the COP, many architectural objects were started or accomplished. As for the power industry, construction works on the water power plant in Rożnów were started as well as on the power plants in Stalowa Wola, Mościce, Poręba, Starachowice and Lublin. The power system was to be supported by the local water power plants. At the same time, high voltage lines connecting the particular COP plants with one another and with Warsaw were developed. Also, a network of gas piping was created. New railways were started to be built, traffic capacity of 69 railway stations was increased and ten new railway station halls were built. 1300 km of new telecommunication connections were constructed, roads were improved and works were begun in a water connection between Silesia, Sandomierz and Stalowa Wola.

While carrying out the program of the COP, many industrial plants were started and completed. In Starachowice, the factory producing cannons and ammunition was developed (Fig. 2), in Radom an arms factory was built, in Rzeszów H. Cegielski Machine Tool Factory which was also supposed to produce 37 and 40 mm cannons, Aircraft Engine Factory, Leszczyński light alloy foundry and head-light factory. In Sanok M. Zieleniewski Arms and Machine Tool Factory was built. A plane factory was built in Mielec. In Dębica ‘Stomil’ Tyre Factory, Artificial Rubber Factory and Meat Processing Factory were built. In Pustków an explosives, igniting devices and modeling paste factory was built and in Pionki Gunpowder and Crushing Materials Factory was erected. A gunpowder factory was built in Krajowice, semi-precious metals foundry in Gorzyce, colour metals rolling mill in Pustytnia, ammunition factories in Majdan-Dąb and Jawidz,
chemical works ‘Nitroza’ in Sarzyn, cellulose factory in Niedomice and a sawmill in Sędziszów Małopolski. In Mościce Nitrogen Plant was developed. In Stalowa Wola works on Steel Plant along with a cannon factory were commenced (Fig. 3) [13].

In Tarnobrzeg a copper refinery was built. Military Rocket Factory and magnet factory were created in Bliżyn. A porcelain factory was built in Boguchwal. In Sanok a factory producing storage batteries was built. Such factories producing storage batteries were also built in Łańcut and Tarnobrzeg. In Lublin a plane factory ‘Plage i Laškiewicz’ was created as well as a gas mask and barbed wire factory and works on a truck factory licenced by General Motors were started [12]. In Kraśnik a bearing factory was built and in Kurów a leather plant was erected. An armoured tower foundry was built in Ostrowiec Świętokrzyski (Fig. 4).

Near Dębica works were started on a copper and aluminum rolling mill while in Poniatowa a technical materials and apparatuses factory was commenced.

In all of these places, the speed of carrying out the investments was impressive. In the so called Southern Works (Stalowa Wola) at the end of March workers started cutting down trees at the place of the future investment
and already in December 1937 the first machine tool was produced, in April 1938 the first cannon fired at the plant shooting range and in December 1938 the first precious steel was melted down.

The building of the so called COP became the greatest economic enterprise of the Second Republic. Today, when assessing the implementation of these projects, we can state that some structures which survived until today reflect the process of a comprehensive change in lifestyles of many people. We cannot analyse the industrial buildings with no reference to the accompanying processes of erecting residential estates, usually called colonies, along with the necessary infrastructure.

The building of factories in the COP was accompanied by residential buildings for the employees. In total, about 7100 residential buildings were started or accomplished. Residential colonies for physical workers as well as estates for office workers were built (Fig. 5).

Fig. 5. Stalowa Wola. Factory workers district. Photo by author, 2009
In 1926 the Polish authorities decided to transfer the Polish State Railways Headquarters from Radom to Chelm as it was situated more centrally within the present state borders. Consequently, the local authorities ordered a land development concept of a new railway district. The project of ‘New Town’ was prepared by the architects Adam Kuncewicz and Adam Paprocki for the area of 430 hectares\(^1\).

The project implementation was started with building a colony for office workers, the so-called ‘Head Office’ for the railway workers who were to move in here from Radom (Fig. 6) [5, 7].

Lack of funds caused by the economic crisis and a change of the government decision as to locating the Railways Headquarters on the territory of Chelm significantly extended the project. It was only in 1938 that a modern estate was built with an explicit urban composition with residential buildings in the style of ‘eclectic modernism’ mixed with national motifs. The develop-

\(^1\) Kuncewicz A., Paprocki A., *Opis techniczny do szkicu rozbudowy miasta Chelmia*, 1926.
ment plan of New Chełmno which was carried out from 1926 until the outbreak of the World War II was accomplished only partially. In accordance with the program of the Ministry of Transportation, the area of 50 hectares, situated east of the old town, was designated for the needs of the investment; the land was given by land owners for the benefit of the state treasury. The axis of the architectural structure was the Edifice of ‘Head Office’ designed by Henryk Gay. Its modern form was very different from the residential buildings which had been erected some time before. It was designed on the projection of the letter H closing the axis of the main avenue which connected the railway station with the town (Fig. 7) [9].

The residential colony consists of one-storey houses with a utility attic and two-family houses whose form refer to the Polish mansions as well as two-storey multi-family houses and 3-storey blocks of flats situated in the frontages of the main avenue\(^2\). All the residential buildings are equipped with characteristic high mansard roofs covered with ceramic tiles having various fronton solutions\(^3\) (Fig. 8) [11].

\(^2\) According to the project, there were plans to build 533 flats in dense development with an average flat size of 94.5 m\(^2\) (the smallest were two-room flats of the area of 70 m\(^2\), then three-room flats of the area of 90 m\(^2\) and the biggest ones – four-room flats of the area of 120 m\(^2\)). In addition to this, in 30 twin houses there were designs of 60 five-room flats of the area of 150 m\(^2\) while in 3 twin houses 6 six-room flats of the area of 175 m\(^2\). Together with the chairman’s house (not completed), 600 flats were planned to be built (State Railways Head Office Development 1929). Despite the numerous financial difficulties, the program of the railway estate was carried out almost in full.


**Lublin**

The fact of including the southern part of Lublin Province as a provision region into the program of the Central Industrial Region in 1936 contributed to the development of the agriculture and food industry plants existing in Lublin (mills were extended, a new slaughterhouse was built and cold storage and tobacco plants were erected. From 1930 the slaughterhouse facilities were partly taken on lease by the company Poels & Co – producers of tinned food. Due to this action, the slaughterhouse was extended by another facility in the years 1936–1938 (Fig. 9).

Apart from the agriculture and food industry plants, also various military sector works were built in Lublin. The most important plant in Lublin was the Aeroplane Factory (which continued the activities of the liquidated plant Plage i Laśkiewicz. The first planes were produced on the Italian licence. They were monoplane fighters ‘Balilla’ – about 100 pieces were made and line biplanes ‘Ansaldo’ – about 120 pieces were produced. They were made for the army. These planes were infamous because they were very accident-prone. The airport, air-sheds and new production halls covered the area of about 14 hectares. The plane factory was situated at the junction of the transit road to Zamość and the railway line on the route Warsaw –Kowel and comprised more than 20 structures, among other things: four brick air-sheds, one wooden air-shed,
workshops, warehouses, office buildings and auxiliary facilities.

The factory had its own railway side-tracks. In 1935 the company was nationalized and transformed into Lublin Plane Factory producing mainly RWD-14 planes. A few factory facilities are preserved until today: air-sheds, workers' residential building and construction office dating back to the 1930s (according to the design by Tadeusz Paprocki).

The air-shed buildings are especially interesting. Due to their particular function, large size constructions had to be employed. Therefore, the most recent technological ideas appeared and they were characterized by simplicity and fineness of technological solutions. The most characteristic one is the air-shed building preserved until today in the reinforced concrete construction.

In 1922 in Warsaw the Design Bureau of Military Production Central Management was created. This institution’s task was, among other things, preparation of design documentations of the three big modern ammunition factories based on the modern technologies; they were completed thanks to receiving a financial loan from the French government. These factories were: Ammunition Factory in Skarżysko, Gunpowder Factory in Pionki and arms factories in Radom. This region was referred to as the security triangle. In the subsequent years, the main role in creating military sector factories was played by the Military Production Central Management in Warsaw. The budget of this institution was decided by the Minister of Military Affairs in cooperation with the Treasury Minister in form of the so called additional budget [2, 8].

The location of the Ammunition Factory in Skarżysko was decided long before the creation of the COP. It resulted from the analyses of the results of using military planes during the First World War. That is why the factories were located in hidden places in forests, but close to the railway tracks. At the same time, these objects were perfectly masked in case of air raids because the factory buildings were specifically planned in a form that was similar to the urban systems of residential estates with streets and additionally planted trees if necessary as well as with roofs that were masked by various plants growing there. There was even a plant cultivation department with a gardener [4].

Skarżysko-Kamienna

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The factory buildings were erected by means of a frame construction with the use of steel girders. The most often used material was sand brick and in the buildings with the supporting structure of reinforced concrete the walls were made of sand brick and joint sandstone plates (which is identical with the façade finishing technologies employed in residential buildings) (Figs. 10, 11).

The residential estates accompanying the factories were located in their vicinity so that the employees did not have to commute long to get to work. The urban system forms of these estates as well as their architectonic expression referred to the factory complexes.

In these factories, apart from military sector production, civil products were also made because the factory capacities were higher than the demands from the army. Until 1939 in Skarżysko the factory produced machines, market devices and articles as well as car parts for Polish Fiat.

In the years 1938–1939 also ammunition, detonators and air bombs were produced. Shooting took place in a special closed factory shooting range.

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9 In Radom bicycles were produced, a gun factory additionally produced typewriters and in Stalowa Wola turbines were produced.
In 1923 construction works were started on residential houses for the management members in Kolonia Górna. In 1924 the building of the first barrack was finished on Armii Ludowej Street – this served as the director’s office. At the same time, building works were conducted on an office, fire-station and factory buildings of the Military Rocket Plant. In the distance of circa 1 kilometer from the factory residential estates were built – Office Workers’ Colony\(^{10}\) and Workers’ Colony\(^{11}\). In the subsequent years, several more barracks and residential houses were erected (Fig. 12).

\(^{10}\) Estate for Office Workers (1924–1925) consisted of 10 two-storey houses made of brick, in total 24 four-room flats, 18 five-room flats, 8 six-room flats and 1 nine-room flat.

\(^{11}\) In 1923 in Factory Workers’ Colony there were already 34 one-storey houses with tiled roofs, equipped with running water, WC, basements and gardens. In ten houses there were 19 one-room flats, 210 two-room flats, 19 three-room flats, 24 four-room flats (in total 272 flats).

Most of the buildings were made of sand brick with the employment of joint sandstone plates for finishing façades. Their architectonic form resembled ‘modernised’ tenement houses, while the smaller ones referred to the national forms. A very interesting form can be seen in the complex Kolonia Rejów built as barracks situated on a hill slope\(^{12}\).

In 1934 next to the Military Rocket Plant which was built in 1929 a residential estate was built and it was called Skalka. The factory and the estate were surrounded by a high barbed wire fence.

Concurrently with the factory and residential houses, other building were also erected such as schools, kindergartens, outpatient clinics, clubs, cinemas, sports centres and Roman Catholic churches [3].

\(^{12}\) Kolonia Rejów (Colony Rejów) consisted of ten barracks, each with 8 two-room flats, two one-storey brick houses with 5 three-room flats and one four-room wooden house.

**Stalowa Wola**

An example of a newly created plant is the so called Zakłady Południowe – Southern Works Limited in Nisko – a factory centre in Stalowa Wola erected on the territory of the former village Pławn (in the northern part of Sandomierz Forest between Nisko and Rozwadów on the river San). The owners of the shares in the company were Huta Pokój (Ironworks) and Starachowice. The reasons for such location of the metallurgical and mechanical works were economical and social conditions as well as security.

The entire project of the works was prepared by a specially appointed team of experts supervised by Engineer Roman Juszkiewicz. The factory buildings were designed in the frame and steel construction. Pile foundations made of reinforced concrete under the factory structures were made already in May 1937. It was already during the winter of 1937/38 that the first steel constructions produced in Huta Pokój were fixed. The building works were accompanied by laying railway side-tracks thanks to which building materials could be delivered, building access roads, execution of water supply system, canals and power network. The first steel was cast on 5 September 1938 and the whole investment was accomplished in March 1939 (open-hearth furnace, two arc furnaces). The total area of all the factory industrial facilities amounted to 89.868 m². Officially, the Southern Works (ZP) started work at the end of February and at the beginning of March 1939 – all the production departments worked in full swing then (Fig. 13).

In spring 1938 in the vicinity of the ZP, building works on a power station were started where the first 20 KW turbine started working on 1 May 1938. The second turbine and two boilers started work in August 1939.

In January 1937 a decision was made as to building aluminum works near the ZP but it did not come to pass until the outbreak of the war.

At the beginning the builders of the ZP as well as its employees lived in various towns and villages in the

![Fig. 13. Stalowa Wola, industrial halls of Metal Factory in the steel frame construction system. Photo by author, 2010](image-url)
area. In 1937 first six barracks adapted for living purposes equipped with sewage system and water supply system were built for employees and in June 1937 works on the first residential houses were begun according to the approved urban plan elaborated by Architect Rudziński. The estate was for 20 thousand residents and later this number was to be increased to 50 thousand people. The construction works on the houses were to be supervised by the Military Quartering Fund. Later on, the building works were to be financed by the Social Security Institution (houses already erected) and the Working Estates Association (workers’ districts and two-family houses). In the beginning the residential estate consisted of two colonies: one for physical workers and one for office workers and they were divided by railway tracks. The estate was managed by Estate Administration and Forest and Agricultural Economy. Cutting down the trees at the estate and in the ZP required a permit from the Forest Farm.

The houses were erected ‘in series’ – several residential houses were opened for residents’ use at a time. In total, within the period of three years until the outbreak of the war 970 flats were built. In the course of time, the following colonies were created: Workers’, Masters’, Office Workers’ and Directors’ (Fig. 14) [13].

In 1938 two more hotels were built with 90 rooms, later on one more hotel with 30 rooms was built. Also in 1938 a multi-story wooden building was erected which was to serve as a temporary outpatient clinic and in 1939 construction works on a hospital for 400 beds were started. In mid April 1939 the building site for a lower secondary school was marked out and the school year could begin already on 17 September 1938. The project of a social club was prepared at the beginning of 1939 but its construction was not started before the outbreak of the war. In March 1939 W. Kubicki began building works on a cinema but they were not accomplished before 1 September 1939.

The building of a playing field was commenced in the autumn of 1937 and the stadium was completed in the spring of 1939. In the summer of 1937 tennis courts were started. At the end of 1938 four tennis courts were ready. These investments were financed by the FKW.

We can state that Stalowa Wola residential buildings are the most stylistically consistent, with some features of functionalism. The materials employed in the particular buildings are similar, i.e. finishing façades with mineral plaster, clinker faced pedestals, flashing sheet elements, grating, interior terrazzo, floors and woodwork gave the estates their consistent elegant character. The structures, minimalist in their form and mass, create the late modernism architecture. Similar forms, although on a larger scale, can also be noticed in the power station and metallurgical works. [10]

**Summary**

The end of the war in 1918 and the rebirth of the Polish state initiated the process of the economic development of the country. It resulted in intensive investment and building activity and this influenced the spatial development of towns.

In most of the cases, the industrial and communal investments of that time performed their function for many years in the future. The architectural structures located on the outskirts of towns in the 1920s are now gradually absorbed into the downtown zone. Economical, political
and legal conditions of the recent years made these factories stop production processes and change their functions and if there is no interest in further investment activity of a given structure, it is abandoned which leads to its technical death. This is what happens with the majority of the industrial complexes discussed here. Fragmentation of these complexes which is introduced in order to create new consistent forms of usage mostly leads to uncontrolled devastation of the buildings and physical destruction of those which are not needed at a given point in time [10].

The residential buildings which accompany the factories change owners and forms of management. They undergo thermo-renovation processes; roof covers as well as window woodwork are replaced with the materials which do not belong to the time at which the buildings were erected. Divisions of windows are changed, risalits and other architectural elements that are covered with heat insulation materials disappear. Through the employment of modern colours, facades of many buildings change their articulation.

During the recent decades, right before our eyes, the Polish architectonic style of the interwar modernism in its regional variants has been disappearing. The architecture of such structures, diverse as regards their size, form and finishing materials, frequently associated with the features of native ‘national’ architectural art, is changing its appearance and function, with no sign of respect from the local communities.

In my opinion, it is high time we took some system actions aimed at protecting our architectural heritage dating to the time of the rebirth of Poland. The technical condition of the interwar buildings, despite the fact that they are already seventy years old, is evidence of the high level of building culture (which was lost under the Communist regime), high technological quality as well as the employment of innovative functional and spatial solutions which can still serve as a model of rational space formation until today.

References


Architecture of industrial complexes of the Central Industrial Region (COP) in south-east Poland

W artykule przybliżono niektóre wybrane realizacje z obszaru Centralnego Okręgu Przemysłowego (COP) i pokazano charakterystyczne cechy zarówno ich form architektonicznych, techniki wznoszenia, jak i układów urbanistycznych. Do analizy wybrano reprezentatywne przykłady z miast obszarów A, B, C, tj. z Lublina, Skarżyska-Kamiennej, Ostrówca Świętokrzyskiego, Chełma Lubelskiego i Stalowej Woli.

Omówiono wybrane przykłady zabudowy związanej z tworzącym się okrągiem przemysłowym w okresie 1918–1939. Realizując program COP, w Polsce międzywojenniej rozpoczęto i dotychczas MAK budowę wielu zakładów przemysłowych. Po doświadczeniach wojny polsko-sowieckiej, w roku 1921 powstała koncepcja zlokalizowania polskiego przemysłu zbrojeniowego w tzw. trójce bezpieczeństwa – w widłach Wisły i Sanu. W latach 1923–1929 w Polsce udało się zbudować kilka zakładów przemysłu zbrojeniowego na terenach staropolskiego zagłębia przemysłowego.

Architectura zespołów przemysłowych Centralnego Okręgu Przemysłowego (COP) w Polsce południowo-wschodniej

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Budowa tzw. COP stała się największym przedsięwzięciem gospodarczym w Polsce południowo-wschodniej oraz przedstawiono ich stan zachowania.

Słowa kluczowe: Central Industrial Region (COP), industrial architecture, housing, modernism

Key words: Central Industrial Region (COP), industrial architecture, housing, modernism