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Modernist Interpretations of the Principle of Type and Repeatability in the Work of Warsaw Architects in the Period Between the World Wars

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Typicality, standardisation and the repeatability of components are an important feature of a great deal of 20th century modernist architecture. The widespread availability of architecture, especially housing, to the mass customer was a goal that determined the direction many distinguished architects would follow in the 20th century. As preconditions to industrialisation, typicality and repeatability both permeated 20th century thinking about mass-scale architecture to become one of the principles of modernism.

I will focus on the period between the World Wars, which was a key formative time for the concept of type and repeatability. These phenomena changed over time; therefore there is a need to recall their origin and take note of the results that followed. I will use interpretations and examples from Warsaw architects to illustrate the subject.

Type and repeatability in architecture are not a 20th century invention. It was rather a matter of discovery that they could be consciously used as the material and instrument of a system based on rational principles and the developments in science and technology to accelerate the development of optimised architectural solutions that would have taken a long time as a matter of natural course. A system that would make it possible to design and build eminently perfect architectural models of universal quality. Succumbing to the "mirage of immortality", the belief that a human-made system would last, a need and possibility was noticed for its self-regulation, expressed in the concept of the designed types, capable of transformation into a so-called "flexible layout" or so-called "types of growing apartments and houses."

The typification and prefabrication of 20th century architecture resulted from a rationalist attitude and the industrial age. Construed as the result of natural processes, as opposed to deliberate standardisation, typicality had always been a feature of mass architecture, a result of perfecting and selecting the solutions supported by virtue of function, material, custom, general culture and civilisation in different eras. Long-term processes had brought about, for example, the standard Greek house, Roman amphitheatre, bourgeois townhouse, etc. Architectural types, in the sense of functional standards, had their own place and time; produced by the mechanisms of homeostasis, feedback and natural selection, they would fade away when no longer meeting the requirement of equilibrium with their environment, while their components would blend into the new stages of architectural development.[1]

Enlightenment rationalism came up with two ways of construing type in architectural theory. The type as an idea, a principle, as creative imagination combined with tradition; and the type as a tool to design building outlines that could become a model for actual architecture to imitate and copy. This perspective was first put forward by Quatremére de Quincy in his *Dictionnaire historique de l'Architecture* (1832), the second interpretation was given by Jean Nicolas Durand (published from 1802 onwards), who subjected the functional types of architecture to his innovative design method and, when publishing the results, came out in favour of repeatability.[2] Besides the possibility of short-term observation and perception, mass architecture had always had processes of optimisation and selection going on at its rudimentary level, and when they reached an appropriate critical mass they would become a conscious trend, issue or type.

In the second half of the 19th century the issue of workers' housing became pertinent enough to draw architects' attention. The notion of "type" appeared in publications on the subject to describe layouts of flats and houses of local provenance, "more practical" ones and those that introduced improvements to the status quo.

The designation of "type" referred to solutions developed in a natural process, best adapted to the climate, customs, materials and economics. Workers' flats, largely repeatable, were coupled into semi-detached houses, four-plexes, terraced houses, in horizontal and storeyed layouts.[3]

In the second half of the 19th century, a time when mass needs in architecture were accumulating, tendencies for repeatability and type (not fully crystallised yet) also made a mark in public building e.g. hospitals, schools and railway stations. As an essence of culture and a way of life, the type also served as a space marker. Such a role, apart from its function, had been played in the past by the Roman amphitheatre, the Roman temple etc. The type's unifying role was used many times in the history of architecture.

In the architecture of the first half of the 20th century, the issue of type existed in both meanings referred to above: the universal ideal and models to be copied. The awareness of the type and how to use it had grown. Ideal concepts determined trends and inspired to improve specific solutions, their selection and verification as a result of their practical use. Confronting an idea with reality could lead to its correction or even rejection and to the search for a new one, along with a change in the environment.

1. Roguska Jadwiga, *Helena i Szymon Syrkusowie: koncepcje typizacji i uprzemysłowienia architektury mieszkaniowej,* "Kwartalnik Architektury i Urbanistyki", 2000, No. 2, p. 117.

2. See *The True, the Fictive, and the Real: The Historical Dictionary of Architecture of Quatremere de Quincy*. Introductory Essays and Selected Translations by Samir Younes, Andreas Papadakis Publisher, London 1999, pp. 22-28, Bandini Micha, *Typological Theories in Architectural Design, Companion to Architectural Thought,* London, 1993, p. 385.

3. See Hinz Jan, *Domy mieszkalne dla rzemieślników,* "Przegląd Techniczny", Vol. XV, 1882, No. 1, p. 9 ff.

At the turn of the 20th century, the idea of a garden city, put forward by Ebenezer Howard in 1898, was perhaps the most important concept in architecture, based on earlier experiences and a new idea to lay out a small town from scratch. It showed the way to heal the capitalist city. The ideal model called for, among other things, a non-speculative form of land ownership. It was vague enough to provide for multiple interpretations and detailed solutions, including the development of modern solutions for cheap small houses derived from modernised local house types such as the English *cottage,* the German *landhaus,* the Polish manor house or the American prairie house. It confirmed the principle of using cheap small house types, which dated back to the time of industrialist-sponsored workers' housing estates. Garden city designs usually included several such types arranged in various configurations, depending on the layout of the street grid and the division of the land to accommodate individual gardens. After the success of Letchworth, England (established 1903, designed by Raymond Unwin and Barry Parker), Howard's idea became very popular in Germany thanks to Hermann Muthesius. Germany's first garden cities, including *Dalhauser Heide* (1907-11) and *Margarethenhóhe* (1909-13) in Essen, the garden city of Hellerau/Dresden (established 1909, R. Riemerschmied, H. Tessenow) and even later ones such as *Staaken* in Berlin-Spandau (1914-1917, Paul Schmitthenner) were erected in the neighbourhood of industrial plants, in line with the idea to rationalise workers' housing.

In Polish lands (then under German, Austrian and Russian partition), the idea of a garden city was appreciated by physicians and social activists along with its modifications: the garden settlement and the garden suburb; the concept first appeared in the papers by students and architects educated at German technical universities (Darmstadt, Dresden, Berlin, Karlsruhe) who were effective in designing small house types, depending on the number of rooms or the number of families. The first small house designs for a railway workers' garden settlement near Warsaw come from 1907 and were published in the Warsaw *Przegląd Techniczny* (Technical Review) magazine in 1908 (Z. Kalinowski, Cz. Przybylski).[4]

Simultaneously, conceptual work was going on to develop a Polish version of a modern small house with garden surroundings in the form of a manor house based on local tradition. This model was reinforced by the 1912 Exhibition of Architecture and Interiors in a Garden Environment in Cracow, accompanied with a competition to design five types of residential housing.[5]

Around 1910, the designation "type" was used in Poland most commonly in reference to garden cities as workers' settlements. In the case of garden cities with other economic backgrounds (joint-stock associations), or unspecified targets - the designation of a model design (projekt wzorcowy) or a suburban house design (projekt domku podmiejskiego) was more likely. However, "type" was a progressive notion in architectural design descriptions and as such became widespread, having dissociated its meaning from working class connotations.

Following a change in military doctrine and a decrease in restrictions on building along the city's fortifications in 1911, education, competitions, exhibitions and a number of simultaneous garden city initiatives surrounding Warsaw led to the emergence of quite a large group of Warsaw-based architects skilled in designing manor-type houses and brought about the experience that showed a need for new legislation, a system to provide loans and especially methods to procure land at low prices. In Warsaw's case this could only be agricultural land: landed property located beyond the fortifications. None of the city gardens surrounding Warsaw, which were at an advanced design stage at the time (two in Młociny in 1910-13, one in Rakowiec in 1913 and the garden city of Ząbki in 1911-14) was completed as planned.

4. "Przegląd Techniczny", 1908, No. 15, p. 197, plate IX, X.
5. Kopera Feliks, *Sztuka polska 1795-1930*, p. 810.

1. *Division and development plan for state-owned real estate in the Żoliborz district of Warsaw made at the Ministry of Public Works in 1925. A - Żoliborz Urzędniczy (Officials' Żoliborz), B - Żoliborz Oficerski (Officers' Żoliborz), C - Osiedle Wojskowe (Military Estate), D - Warszawska Spółdzielnia Mieszkaniowa (Warsaw Housing Co-operative). Designs by architect A. Bojemski for two types of houses in Brodzińskiego St. (1919) for Żoliborz Urzędniczy (1921-1922), acc. to "Architektura i Budownictwo", 1926, No. 6*

Nevertheless, this phase reinforced the idea of the garden city and the idea of healthy and affordable housing based on the principle of type and repeatability.

Immediately after Poland regained its independence in 1918, a state-led campaign was launched in Warsaw to erect houses for officials in housing settlements based on the principle of garden suburbs. The designs were ready before partial regulation plans had been completed (1921) and before the adoption of important housing legislation such as the Act of 1920, which allowed the forced purchase of landed property within a 15-kilometre radius from the centre of Warsaw for the purpose of the city's building development reserve, the Act of 1921 on the transferral of certain state-owned land to housing co-operatives and the Act of 1922 on land aid to co-operatives through municipalities.[6]

Even before the legal framework was in place, as early as in 1919 Warsaw architects including R. Świerczyński, K. Saski, Z. Mączeński and R. Gutt designed in Żoliborz,

6. Słomiński Zygmunt, *Z działalności Komitetu Rozbudowy m. st. Warszawy,* "Architektura i Budownictwo", 1925, Issue 2, p. 24; Wąsowski Paweł, *Architektura wielorodzinnych domów spółdzielni budowlano-mieszkaniowych w Warszawie w okresie międzywojennym (1918-1939),* "Kwartalnik Architektury i Urbanistyki", 2008, Issue 1, p. 28.

which had been incorporated into the city in 1916 and taken over by the Polish state from the Russian Army in 1918; they designed streets with modular housing consisting of several types of manor and/or small-town houses. Spearheaded by the Ministry of Public Works, these projects included a design by Zdzisław Mączeński for the development of Pokorna Street. The then-designed layout of housing estate streets in Żoliborz, mainly along the north-south axis, shows that the experience with design based on the garden city principles led to a good idea of the pros and cons of various ways of grouping repeatable segments, a harbinger of the preference for the north-south axis in terraced housing, which would soon be consolidated in the linear planning principle.

In keeping with the campaign to provide housing to officials by the state, from 1921 onwards three streets were built in Żoliborz Urzędniczy with typical repeatable manor houses (Fig. 1). The streets were designed by three architects, each by a different one. Wieniawskiego St. and its housing was designed by Marian Kontkiewicz, Brodzińskiego St. by Aleksander Bojemski and Wyspiańskiego St. by Romuald Gutt. Just two types of houses were enough to develop Brodzińskiego St.: detached and terraced buildings (Fig. 1).[7] The repeatability also concerned the details, which have survived, albeit with a flawed change in window colouring in several places (Fig. 2). Funded by the state, the development in Żoliborz Urzędniczy was largely uniform.

Żoliborz Oficerski, a garden suburb co-op housing estate erected nearby in the 1920s, with three types of houses in multiple variants: from detached, through semi-detached to terraced houses for 3-10 families, was designed by three architects: Tadeusz Tołłoczko (also the designer of the detailed master plan), Rudolf Świerczyński and Romuald Gutt. The location of their designs is jumbled up. As a result, Żoliborz Oficerski is less uniform than Żoliborz Urzędniczy, with standard designs adapted to the wishes of the co-op members.[8]

The north-eastern "quarter" of the Żoliborz layout, divided into four parts by a "cross" of the district's main streets (Fig. 1), contains the Military Settlement (Osiedle Wojskowe) designed by Roman Feliński and begun in 1925.[9] Described in the designs as "types" designated with numbers and letter variants, the Settlement's manor houses were an example of absolute mastery in this kind of housing through type and repeatability. It should be emphasised that this stage in type and repeatability's presence in the affordable housing of the time concerned the house as a comprehensive form containing flats. This is clearly demonstrated by the 1924 manor-like repeatable co-op house in Mochnackiego 23/25, designed by R. Miller; it would be difficult to guess a semi-detached layout behind the house's single portico (Fig. 3).[10]

Another area where the idea of type and repeatability matured in the period between the World Wars was comprehensive school architecture, to accommodate the 7-year education system introduced in Poland in 1921. This extended schooling period made the shortage of school buildings more acute.

In 1921, the Ministry of Public Works initiated the publication of *Materiały architektoniczne. Budowle użyteczności publicznej wsi i miasteczka* (*Architectural Materials. Public Utility Buildings in Villages and Small Towns),* with the first volume dedicated to primary school designs. Despite the assurance that book's purpose was not to prescribe typical buildings, but rather to illustrate the trends for a model school, the notion of type and repeatability did appear in these designs, for example in the form of double semi-detached schools with a shared gym to save money. It

7. See "Architektura i Budownictwo", 1926, No. 6, p. 6; Roguska Jadwiga, *Warszawskie kolonie willowe lat 20. XX wieku. Symbioza zachodnioeuropejskich zasad urbanistycznych i rodzimej formy architektonicznej,* "Urbanistyka", 8/2004, pp. 33-36.
8. Ibid.
9. Lewicki Jakub, *Roman Feliński, architekt i urbanista. Pionier nowoczesnej architektury,* Neriton, Warsaw 2007, pp. 85-87.
10. Roguska Jadwiga, *Warszawskie kolonie willowe...,* op. cit., p. 38.

2. *Terraced houses in Brodzińskiego St. in the Officials' Settlement (Kolonia Urzędnicza) in Żoliborz, Warsaw (1921-1922). Today the doors and windows have inconsistent colours. Photo by J. Roguska, 2009*

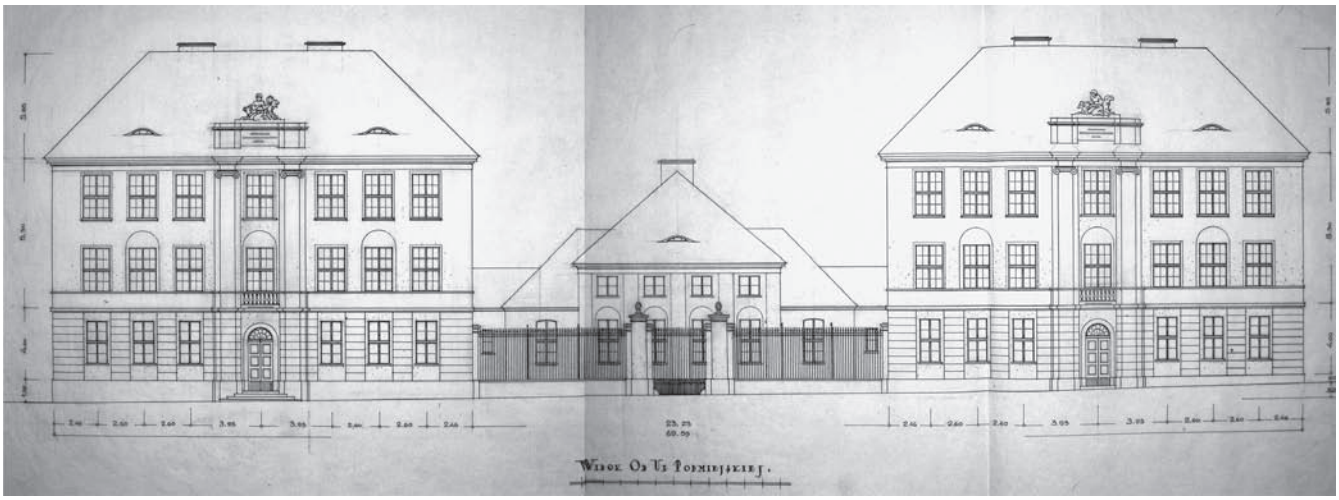
was based on such an idea, used in a 1924 design in Łódź (Fig. 4) that architect Zdzisław Mączeński, department head at the Ministry, also designed a semi-detached school in Bartnicza St., Warsaw (1924-25). The publishing of *Projekty budynków szkół powszechnych* (Comprehensive School Building Designs) was continued by the Ministry of Religions and Public Education in 1925-1935 (volumes 1-6).

Z. Mączeński's work proves that the modernist principle of type and repeatability permeated deep into architects' studios in the 1920s, including those that stood well away from the avant-garde. In the 1920s, Z. Mączeński designed a type of affordable and easy to build wooden church, meant to be copied in the Lemkivshchyna (Łemkowszczyzna) region along Poland's border with Slovakia. This unifying role of a typical church in an area which was poorly ethnically integrated, had the support from both the state and the Roman Catholic Church authorities. The same architect applied the principle of a repeatable double segment even in framed townhouses, in late 1930s luxury housing architecture.[11]

In the mid-1920s the issue of type and repeatability was taken to a new level, spurred on by an idea that had

11. See Szmitkowska Agata, *Działalność inwestycyjna warszawskiego przemysłowca Jana Wedla i jego kręgu w dziedzinie mieszkalnictwa w latach trzydziestych XX wieku,* "Kwartalnik Architektury i Urbanistyki", 2008, Issue 2, pp. 41, 42; Ibid., *Zdzisław Mączeński (1878-1961) - Sylwetka architekta,* "Kwartalnik Architektury i Urbanistyki", 2010, Vol. 4, pp. 120, 126.

3. *Repeatable semi-detached house in 23/25 Mochnackiego St., Warsaw, designed by arch. Romuald Miller, 1924. Photo by J. Roguska, 2009*



4. *Architect Zdzisław Mączeński, design for double (semi-detached) comprehensive schools in Podmiejska St., Łódź, 1924. Z. Mączeński design archive, family collection*

matured to be put in practice: to industrialise architecture and mass-produce housing. First put forward in an address by Hermann Muthesius delivered at the 1911 Congress of the German *Werkbund*, together with a motion to introduce work on the standardisation of architecture to the organisation's agenda, the concept of industrialised architecture set the efforts of many modernists in motion. The stages of this maturation can be most clearly seen in Le Corbusier's studies and practical work on housing architecture (the *Domino* open floor plan structure - 1914, the *Citrohan* house 1920-1922, his studies and urban planning concepts from the early 1920s, the *L'Esprit Nouveau* pavilion, the *Pessac* estate, 1925).

By the mid-1920s, in many places the idea to industrialise architecture accumulated to the point where it could transition from research to implementation. The construction of the housing estates of New Frankfurt (1924-30) under the direction of Ernst May, who concluded his own phase of designing garden cities in Wrocław (Breslau), became a vast experience-building opportunity. The 1927 *Weissenhof* estate-exhibition in Stuttgart provided an excellent overview of the new housing achievements, including in the area of technology. Also inspiring were the housing estates designed by Walter Gropius in Törten-Dessau 1926-28, *Dammerstock* in Karlsruhe (1927-28), *Siemmenstadt* in Berlin (1929) and Bruno Taut's residential development in Berlin in the second half of the 1920s after his design experience in the garden city mode in Magdeburg (1921-24).

From 1925, new concepts and achievements in the mass production of housing were propagated in Poland in the articles, studies and designs by Szymon Syrkus and his circle of architects from the *Praesens* group, established in 1926, which in 1928 became a Polish branch of the CIAM.

In his articles which introduced the issue, S. Syrkus put forward the following claims: a house must be built of such pieces that can be factory made, the manufacture of components should be transferred to the factory, this manufacturing should be year-round and free of any seasonal limitations related to wet technology (mortar, plaster), dry assembly should be introduced using mechanical force, the technology and materials should be replaced, the structural, filling and utility components reduced to as few types as possible, but - as S. Syrkus emphasised - as long as they result from long and detailed research.[12] It could be construed that the human mind and rational typification could replace the long natural processes of the development of a type.

Mass-produced components for entire housing estates and extended production series were to bring savings and faster capital turnover. The industrial production of buildings was to be based on component typification and standardisation. It was thought that this was the way to achieve the precision and reliability of machine production.[13]

12. Syrkus Szymon, *Fabrykacja osiedli,* "Architektura i Budownictwo", 1928, No. 8, pp. 277-303.
13. Ibid., pp. 279-280.

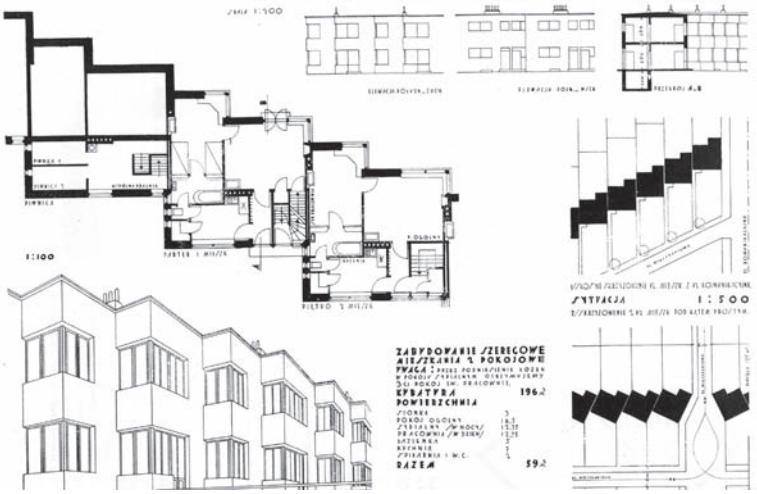
The key sentence in S. Syrkus' argument was: "new industry has created a new type of housing."[14] This confirmed the shift in the concept of the type from the house to the primary unit: the flat. This new line of development, once it got a new impulse from new technology, began from the beginning - from the primary unit of the flat. The house became the packaging or a set of various types of housing units. This change in approach is illustrated when one compares a manor house from 1924, where the housing units are hidden (Fig. 3) and a terraced housing design from 1926, which brings them to the forefront (Fig. 5).

The perception of the architect's work was changing, their task was no longer to conceive a house, but rather to design the assembly of factory-made components and - as it were - find beauty in the strong rhythm of repetition. The flat, and then a house section with a group of flats, types to be repeated, began to dominate the overall design of the house, the typification thereof was a logical prospect when construing progress in this manner.

In the second half of the 1920s, prefabricated structural systems were maturing in experimental houses and estates. Three trends appeared: the most available and least revolutionary system of crosswalls (first W. Gropius - Dessau-Törten (1926-28), in Poland - B. Lachert and J. Szanajca - a three-segment house in 9-11-11a Katowicka St. in Warsaw, 1928-32), then a slab structure - used by E. May in New Frankfurt and finally a framed structure leading to a form consistent with Le Corbusier's five points of architecture[15]

14. Syrkus Szymon, *Preliminarz architektury,* "Praesens", 1/1926, p. 7.
15. Syrkus Szymon, *Fabrykacja...,* op.cit., pp. 288-296.

5. *Design for two-room terraced house apartments by architects: B. Lachert, L. Niemojewski, J. Szanajca. First Prize at the Building Exhibition in Lwów, 1926. "Architektura i Budownictwo", 1926, No. 10/11*



and the most prospective in the 1920s and 1930s. The framing system made it possible to standardise layouts to a great degree and to adopt the module (in *Pessac* - 5 m), to think about creating a para-biological system of growing and changeable components, of a flexible design.

All the above structural systems made it possible to use non-bearing, thin façade walls with good insulation properties. Local inventions would be used, with two-ply walls with brick and external façade boards, prefabricated slabs made of light porous concrete, sawdust concrete slabs etc. The importance of grouping flats to the façade and the shape of the building, the emphasis on repeatability, prefabricated components, the repeatability of detail, the repeatability of carefully designed panels meticulously outlined on the façade became a common feature in the aesthetics of 1930s architecture (Fig. 6). Even where there were no prefabricates or assembly, the outline of the panels on the façade delivered a message of innovation or a simulation thereof. To disturb this rhythm of repetitive detail or to plaster over the real or simulated façade panels during refurbishment is today one of the more common misconceptions and contradictions of the ideas of modernist architecture.

The new understanding of type, repeatability and prefabrication spread into practical Polish architecture selectively and was first tested on small buildings. We should recall H. and S. Syrkus' using a framed steel structure in their study designs for small detached houses from 1930, in detailed construction plans for a house in Skolimów/Konstancin near Warsaw from the same year and the construction of a villa spa building in Konstancin, designed in 1931, with partially prefabricated walls.[16] One of the obstacles to the spread of this trial technology in Poland was the high price of steel. An analytical study from 1930 by architect Tadeusz Michejda of Katowice, with designs for a framed steel structure for one-storey and multi-storey houses ordered by the Polish Steel Mill Syndicate, remained on the drawing board.[17]

There was an interesting attempt to take advantage of timber, a material that had both a long history of use and affordable prices in Poland, for modern prefabrication. Many designers with achievements in housing to their name took part in the *Your Own Inexpensive House* exhibition, held in 1932 in Pola Bielańskie near Warsaw (today within the city limits) under the auspices of the Polish Society for Housing Reform and timber producers.[18] A wooden prefab detached house designed by Romuald Miller (Fig. 7), which won the title of "Popular Favourite 1932", became a type and was copied 22 times over the 1932-35 period in the neighbouring *Związkowiec* estate owned by the Polish Railway Employees Trade Union Co-operative, including the architect's own house in 7 Karska St. (Fig. 8). Today, the relatively well-preserved ensemble has houses with plaster covering the wooden structure in varying degrees.

A milestone in the development of typification in Poland came with the 1935 publication of the "Catalogue of Typical Designs for Small Housing Development" with 58 designs to build, complete with working drawings and priced bills of quantities, based on designs selected from two competitions held by *Bank Gospodarstwa Krajowego* (BGK), provider of housing project loans. This was probably the first time in Poland that the designation "BGK type" appeared on lists of designs approved for construction under the heading "architect's name."[19]

In the case of multi-family housing, which was best suited to take up the issue of mass-produced apartments,

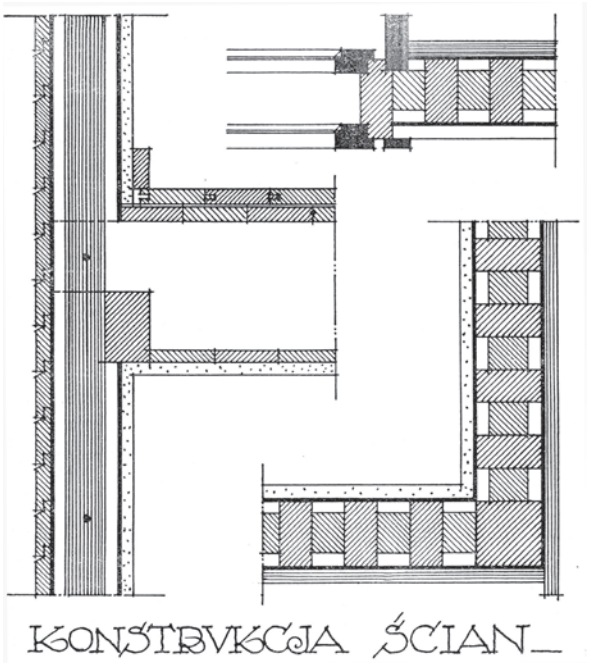
16. Syrkusowie Helena i Szymon, *Dom wolnostojący,* "Dom, Osiedle, Mieszkanie", 1930, No. 11, pp. 3-13; *Dom wypoczynkowy na Królewskiej Górze pod Warszawą,* "Architektura i Budownictwo", 1934, No. 4, pp. 117-121.
17. Michejda Tadeusz, *Jednorodzinne domy w konstrukcji stalowo-szkieletowej,* "Dom, Osiedle, Mieszkanie", 1931, No. 12, pp. 5-12.
18. See "Dom, Osiedle, Mieszkanie", 1932, No. 7-8, pp. 3-47, No. 9-10, pp. 3-17; Porębska-Srebrna Joanna, *Tani dom własny,* "Architektura. Murator", 1995, No. 4, pp. 39-43.
19. See "Przegląd Budowlany", 1935, 1936 - list of designs approved for construction, eg. item 230/36 (Granowska St.), 271, 271, 275/36 (Barcicka St.).

6. *Fragment of the terraced housing project for the employees of Zakład Ubezpieczeń Społecznych - ZUS (Social Insurance Company) in Dziennikarska St. in Warsaw-Żoliborz, designed by B. Lachert, R. Piotrowski and J. Szanajca (1934-1935). Photo by J. Roguska, 2009*

the issue of the type of flat and its repeatability was taken up on a broad scale in Warsaw in the designs for the modernist housing estate of the Warsaw Housing Co-operative in Żoliborz, where nine settlements were erected from 1925 until the outbreak of World War II. From 1927, the avant-garde architects Barbara and Stanisław Brukalski led the way in designing for this project. Multiple stairwell and gallery-access, two- and three-storey houses were built. Given the strict financial constraints there was no experimenting with technology, focusing instead on the functionality and social issues. Observably, numerous types of flats for the houses of the first settlements were developed, with 1 to 3.5 rooms and then the number of variants was reduced after 1930 as a result of improved layouts and selection, actual needs and the impact of the idea of a minimum flat. By 1938, only two-room (36 m^2) and one-and-a-half room (24 m^2) flats with minor size variants were designed for settlement IX.[20]

20. *Mieszkania w Osiedlu Warszawskiej Spółdzielni Mieszkaniowej na Żoliborzu,* "Dom, Osiedle, Mieszkanie", 1932, No. 11-12, pp. 9-31; Mazur Elżbieta, *Warszawska Spółdzielnia Mieszkaniowa 1921-1939,* Warsaw 1993, p. 91.

7. *Architect R. Miller, design for the structure of wooden prefabricated detached house walls shown at the Your Own Inexpensive House exhibition in Bielany (now Warsaw), 1932. "Dom. Osiedle. Mieszkanie", 1932, No. 7/8*



8. *Architect R. Miller's own wooden prefab house in 7 Karska St., Warsaw (1933). Photo by J. Roguska, 2009*

Like many in the first generation of female architects, Barbara Brukalska brought a lot of empathy to design. She took up the problem of designing a small, functionally arranged kitchen[21] with standardised dimensions and furnishing, modelled after the "Frankfurt Kitchen" by Grete Schutte-Lihotzky, but derived from a knowledge of the local customs and conditions of Żoliborz, Warsaw.

The next stage in the approach to typification and repeatability was determined by two big housing construction campaigns initiated by the government. These were the housing development campaign of the Social Insurance Companies (Zakłady Ubezpieczeń Społecznych - ZUS) commenced in 1929 (until 1933) and the work of the Workers' Estate Society (TOR - Towarzystwo Osiedli Robotniczych) established in 1934. This can be considered the beginning of centralised design concentrated in nationwide design offices which later prevailed in Poland and of typification based on methodological research. The design offices and their studios, based in Warsaw and specialising in affordable housing, developed designs for the entire country, ran typification studies, developed layouts of apartment types and their groupings/arrangements (Fig. 9) within the standards specified in their by-laws and the prescribed apartment size and furnishing standards.[22] They would hold architecture competitions with strictly determined guidelines and standards. The affordable housing concept shifted from the notion of a repeatable type of flat to typical groups of flats and repeatable sections/segments of multi-storey houses. In the case of TOR, established to provide "socially most needed" housing for classes which could not meet their housing needs without state aid, the most efficient corridor and gallery passageway systems and the smallest one- and one-and-a-half-room flat types were used. The repeatability of house types took the issue of typification to the level of urban space. The TOR estate in Koło, Warsaw (1935-36), consisted of 19 almost identical corridor-type houses (2 types). The ZUS design office, in turn, had considerable achievements in the industrial production of standardised architectural detail.

The ZUS and TOR campaigns also produced designs for single- and two-family houses, while the participation of distinguished avant-garde architects led to such important architectural creations as the ZUS estate in Dziennikarska Street, Żoliborz, Warsaw (see above) and the Marysin estate in Łódź.

The TOR architects were aware of the risks involved with designing within the constraints of type, inferior standards and repeatability. They saw a counterbalance to the monotony of such a space in the houses' relationship with the surrounding greenery, made attempts to regionalise solutions and indicated the need to adjust the standards after several years of experience.[23]

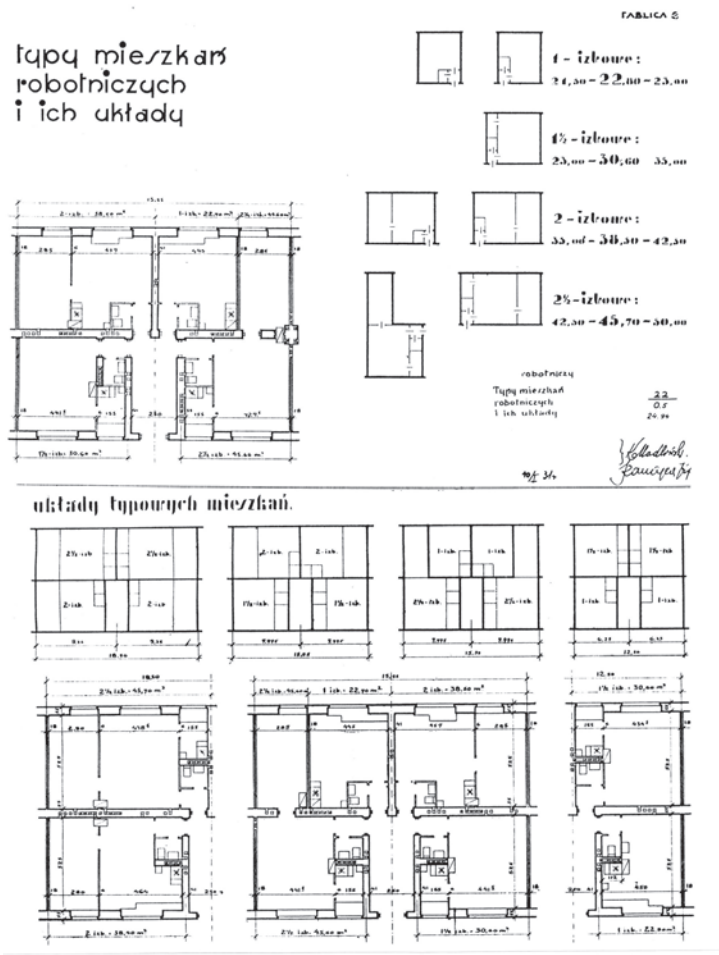
The most comprehensive theoretical presentation of design in terms of type and repeatability which, at the turn of 1930/31, summarised the studies and experience gained so far, and also - as it seems today - was a harbinger of the development of typification and prefabrication in Poland after the World War II, was delivered by H. and S. Syrkus in a study on the *Mass Production of Housing*.[24] They developed the study for the Polish Steel Mill Syndicate to research the possibilities of using steel in high-rise developments. The study was influenced by the experience of Otto Haesler in Kassel and W. Gropius in *Haselhorst*, Berlin, and the ideas of the CIAM.

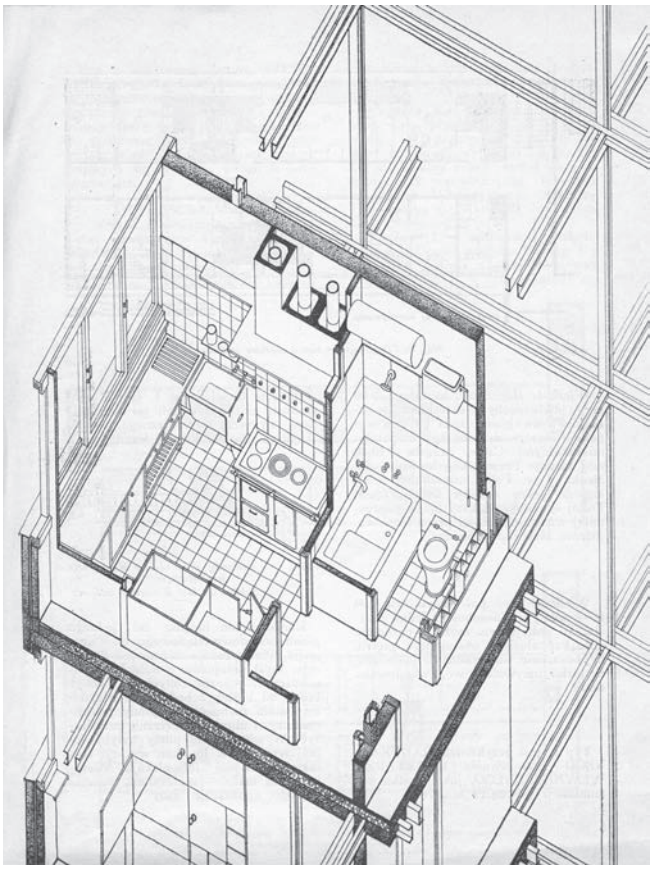
H. and S. Syrkus set themselves the task to develop a type of flat in a steel-structure house that could be copied multiple times, could be enlarged or reduced in size around a permanent core, arranged in various combinations within the block of flats and be possible to build with the industrial method. They assumed the span containing the sanitary compartment and kitchen to be the flat's core (Fig. 10). The module was a 2.70 m structural span, which corresponded to the scale of a human being i.e. a two-bed compartment, organisation of movement, the amount of air and light. They designed flats which ranged from 1-span (9.9 m²) to 4-spans (39 m²) in a corridor arrangement. The growing row of houses was bookended by storeyed flats. This sequence of systematically linked solutions developed according to a uniform idea from the scale of a standardised building

21. See "Architektura i Budownictwo", 1928, No. 2, p. 73.
22. Roguska Jadwiga, *Program taniego mieszkalnictwa Zakładów Ubezpieczeń Społecznych i jego realizacja w Warszawie* [in:] *Ubogi modernizm i socmodernizm w architekturze domu 1925-1975. Wartości i oddziaływanie. 2.* Seminarium naukowe Sekcji Architektury Komitetu Architektury i Urbanistyki PAN, Warsaw, 2005, pp. 5-9.

23. Piotrowski Roman, *Architektura i T.O.R.,* "Architektura i Budownictwo", 1936, No. 7, pp. 222-229.
24. Syrkusowie Helena i Szymon, *Masowa produkcja mieszkań,* "Dom, Osiedle, Mieszkanie", 1931, No. 9, pp. 2-15.

9. *Biuro Projektów Zakładów Ubezpieczeń (Social Insurance Companies Design Office) in Warsaw, types of flats and arrangements of typical working class multi-family houses, 1930/31, "Przegląd Budowlany" 1931, No. 4*





10. *H. and S. Syrkus, Study: "Mass Production of Housing", 1930/31. The Axonometry of a repeatable, standardised "core" of a flat in a steel structure house - sanitary compartment and kitchen, 1930/31. "Dom. Osiedle. Mieszkanie", 1931, No. 9*

component, through a standardised flat, house and location, to the scale of a standardised neighbourhood and city (Fig. 11). H. and S. Syrkus decided that the flexible standard of the column location, which produced a growing type of flat, house and block of flats, entailed a standard situation ensuing from hygienic requirements, i.e. made it possible to support the house on columns and to use linear development regardless of the existing street grid arrangement.[25]

In 1931, the *Praesens* group, with H. and S. Syrkus, prepared a draft for the Warsaw Housing Co-operative estate in Rakowiec, Warsaw, with steel-structure houses in a linear layout, repeating a single type of minimum flat 192 times.[26] H. and S. Syrkus, who built the estate in 1932-34, did not manage to use a steel structure. They erected identical corridor-type houses, in a crosswall system, repeating a single type of flat and windows to create modern ribbons of glazing on the façades.

And so, in the 1920s and 1930s repeatability and typification reached for the detail on the one hand and entire houses on the other.

Repeatability and typification gained momentum in Europe's Eastern Bloc countries after World War II and, where there was no alternative, led to a crisis of this trend and its rejection in the 1980s and 1990s.

Warsaw's first two post-World War II modernist housing estates: WSM Koło II (1947-50) designed by Helena and Szymon Syrkus and WSM Dąbrowskiego in Mokotów designed by Zasław Malicki & Co., displayed a mature idea of a modernist social housing estate and the application of theoretical urban planning studies made during the war. In the Koło II estate, H. and S. Syrkus introduced polygonal prefabrication (Fig. 12), i.e. preparing the components on the building site (50 x 50 x 25 cm crushed-brick concrete blocks). They designed typical residential units and storey structure, but took care to make the houses somewhat individual. The design's modular aspect was highlighted in its façade.[27] In Mokotów, praised for its urban layout, the idea of the repeatability appeared in not just single buildings, but entire building clusters (settlements) as well.

In the 1950s and 1960s typification, repeatability and prefabrication became a dogma in Poland, forcing architects who worked in central design offices to focus their entire intellectual effort on crunching numbers, m^3, m^2, modules, standards, prices and output, where "creative accounting" also included losses and waste.

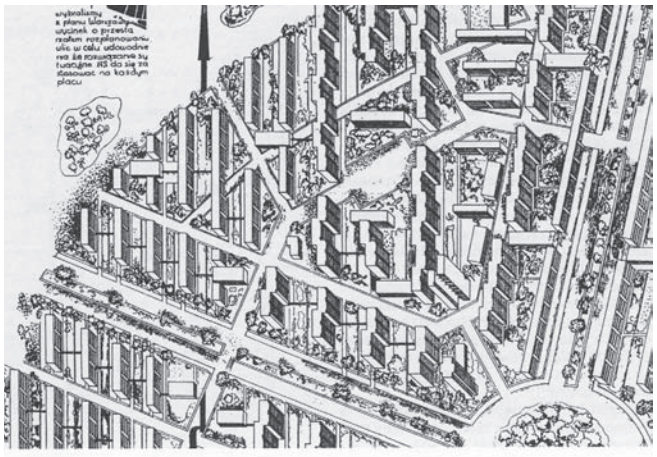
The use of reinforced concrete structures resulted in housing estates made of enormous blocks of flats, such as *Za Żelazną Bramą* in Warsaw (design 1961-65, construction 1965-72, Andrzej Czyż, Andrzej Skopiński, Jerzy Furman, Jerzy Józefowicz) in a recurring linear urban layout, consisting of nineteen 16-storey and several 11-storey buildings, designed for 25,000 inhabitants (Fig. 13).

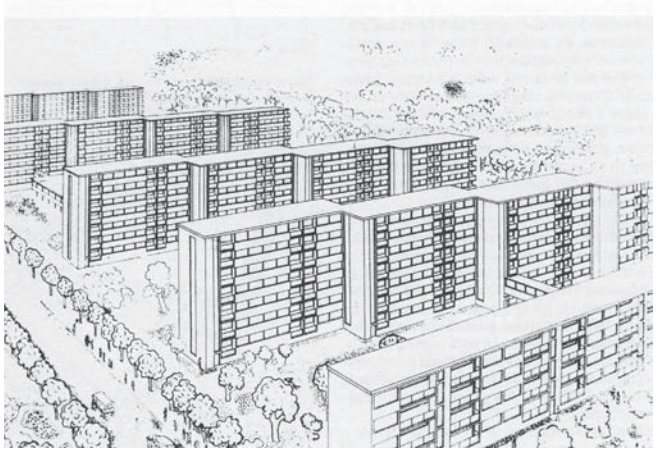
The emergence of a new structural unit (with studies on the subject beginning in 1954) - large panel system (LPS) prefab building blocks - led to 5- and 11-storey types of houses being selected as the best from the point of view of the construction industry.

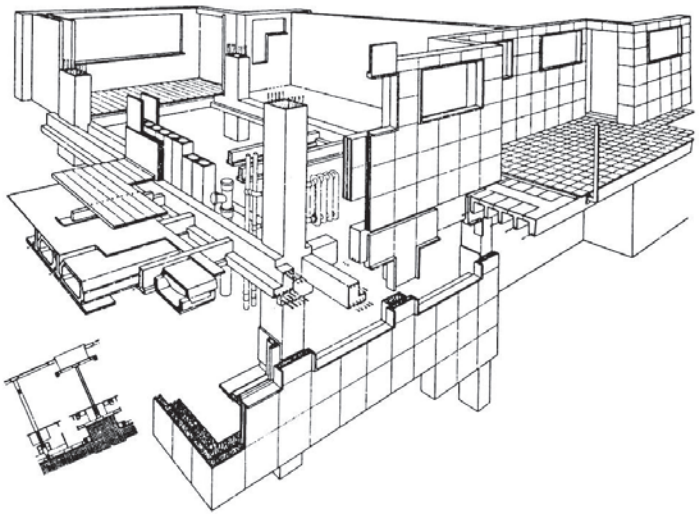
After World War II, typification and repeatability spread to other areas of design in Poland. Beginning in 1947, designs were produced for typical cinema houses, because film was considered to be an effective propaganda tool. The ultimate symptom of the omnipotence of typification was the 1980 Decree of the Ministery of Education which banned the design of individualised school buildings wherever typical designs could be used. Over two decades there had been an accumulation of designs which met strict standards and were adapted for prefabrication, intended for multiple use regardless of the nature of the future site.

25. Roguska Jadwiga, *Helena i Szymon Syrkusowie, koncepcje...*, op. cit., pp. 109-110.
26. Ibid., p. 108; *Zespół Praesens, Osiedle Warszawskiej Spółdzielni Mieszkaniowej na Rakowcu.* "Dom. Osiedle. Mieszkanie", 1931, No. 5, pp. 1-13.
27. Roguska Jadwiga, *Helena i Szymon Syrkusowie, koncepcje...* , op. cit, pp. 114, 115.

11. *H. and S. Syrkus, Study: "Mass Production of Housing", 1930/31. Perspective view of a fragment of a city and a housing estate with steel-structure high-rise development. "Dom. Osiedle. Mieszkanie", 1931, No. 9*







12. *H. and S. Syrkus, The Principle of house construction and prefabrication in the Koło II estate in Warsaw (1947-50)*

Architects saw the downsides of such total typification and prefabrication, but could only demand "open", i.e. flexible typification.[28] There was no room for any broader theoretical discourse.

Meanwhile in the West, the 20th century notion of the type had been considerably amended through practical validation. In the interpretation of Aldo Rossi (1966) the type, or more correctly, the archetype or artefact, understood in the context of temporal and spatial relationships, was liberated from its close relationship with function to become an idea: "a basic logical principle that is prior to form and that constitutes it."[29] In *A Pattern Language* (1968), Christopher Alexander used the achievements of linguistics and structuralism to describe the language of design, providing a new understanding of patterns which in architecture "describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing the same thing twice."[30]

The 1980s and 1990s retreat from typification and repeatability in Polish architecture took place in an atmosphere of considerable controversy. A typical flat was associated with a windowless kitchen and small size, while the area of a modernist housing estate evoked notions of boredom and juvenile delinquents in hoodies. Architects themselves were prone to heated stubbornness in their opinions, in response to their artistic freedom being restrained and the humiliations on a journey where they first played the role of a demiurge - a co-creator of a new spatial and social order - but ended up as slaves to output. This did not encourage any objective assessment of architecture permeated by the idea of type and repeatability. However, we may surmise that, just like the architecture of 19th century historicism, which for several decades had been disavowed as "creatively impotent", the architecture of type and repeatability will also get to be assessed in an objective manner, without pigeonholing or stereotypes, in the history of architecture.

Until recently, this atmosphere of a distinct aversion to type and repeatability in architecture was conducive to a great deal of freedom in selective transforming and replacement of repetitive façade detail, asymmetrical conversion of semi-detached arrangements and a chaotic densifying of modernist housing estates with no regard for the regular repetitive rhythm of the urban layout. This is changing, but given the gigantic scale of surviving modernist mass architecture, it is by raising public awareness of its cultural value and originally lofty goals, rather than by edicts and prohibitions, that the most valuable part of this heritage can be preserved.

28. Kleyff Zygmunt, *O dziejach typizacji zwanej otwartą,* "Architektura", 1971, No. 10, pp. 395-397.
29. Wojtas Justyna, *Neoracjonalizm Aldo Rossiego - główne założenia teoretyczne i ich wpływ na twórczość architektoniczną.* Doctor's thesis under the supervision of prof A. Niezabitowski, Wydział Architektury Politechniki Śląskiej w Gliwicach, Gliwice 1988.
30. Lenartowicz Krzysztof, Review of the Polish version of the book by Ch. Alexander, *Język wzorców,* Gdańskie Wydawnictwo Psychologiczne, 2005.

13. *Za Żelazną Bramą housing estate in Warsaw, design 1961-65, construction 1965-72. Architects: J. Czyż, J. Furman, J. Józefowicz, A. Skopiński. Current state with hotel and office buildings introduced in between the housing development over the last two decades. Photo by J. Roguska, 2009*