A Small Home with a Garden in the Background: The Theory and Practice of Popular Residential Architecture in Interwar Poland – Recapitulation

A Polish Own Home (1918 – 1929)

Program and Interior Layout

Design studies on an indigenous "single–family type house"—whose results were to become a basis defining housing standards and programming–spatial principles for designing small dwellings in single–family houses in an independent Poland—were undertaken in the country in 1907. By their very nature, they went off on two tangents. One was a stylistic tangent launched on a wave of implementation of the assumptions behind "applied art" as well as the quest for a national architectural identity. The second was a programming–planning tangent that was primarily based on English experience, where a modern dwelling was not, as the case had been to date, a mere "series of rooms with doors and windows." Rather, it was a "set of rooms of a shape and physiognomy formed by centuries of uninterrupted and undisturbed evolution of family life" supplemented by a well–fenced garden. For reasons of economy, the "set" of rooms was reduced to a program and spatial minimum barely meeting basic health and moral requirements tailored to a defined number of tenants in inexpensive, popular housing. This was in agreement with pioneering hygiene and building standards developed on the British Isles in the eighteen–forties and fifties. Subsequently, thanks mainly to translations and successive editions of Henry Roberts' *The Dwellings of the Laboring Classes,* the concepts were broadly disseminated not only throughout Europe, but also in the United States. This meant that model hygienic dwellings designated for the low–income family, consisting of parents and two children of different sex, as laid out in single or multi–family two–story buildings with a garden–backyard, were to be a variant of the English welfare dwelling unit, designed in line with local conditions—i.e. a unit with an area of approximately 50 m^2 [538 sq. ft.] consisting of a whole series of well–ventilated and well–light relatively small dwellings that, in order to separate private and common space, should be planned on two levels, complete with ancillary and circulation space.

The application of this program–planning model as created by English hygienists and architects turned out to be very complicated in the practice of European rural and urban building construction where there was great variety in affluence and level of residential culture as well as enormous diversity functioning, crowned by the traditions of individual nations and even regional vernacular models.

It is for this reason that in as much as the minimum hygienic dwelling floor area was generally uniform, the program and interior layout minimums for inexpensive homes were established individually in specific regions. Thus, in practice, they often differed from their English originals in significant ways.

The housing minimum throughout Polish land around 1900 was a single or multi–dwelling unit house. The recognized dwelling unit consisted of a hall, dwelling room, a large kitchen with a pantry, and ancillary facilities providing a toilet and small cowshed. Moreover, significant differences in the program were not only the result of residential requirements, incomparably lesser than those found in the countries of Western Europe and visible in what was known as the customs of the lower classes characterized by a multi–functional utilization of space, but also derived from a tradition of living on a single level coupled with the role played by the kitchen in household life.

Following the lead of their colleagues in Western Europe, Polish architects kept in mind not only the health and morals, but also the comfort of rural inhabitants with ever increasing frequency as of the end of the first decade of the 20th century. In towns and cities, it was often from the rural countryside that tenants of inexpensive dwellings originated. The kitchen facilities in model homes were generally designed in line with their expectations. This meant that if they were not designed as being obviously habitable, they were at least sufficiently large to cater to more than just cooking. They also made it possible for the family to eat comfortably and conveniently perform all their household chores. This obviously was tied with the need to decrease the area of other rooms. It was the main living room that most frequently faced restrictions on surface area. Thus, instead of adhering to the principles of functional segregation and the needs of modern residential culture, instead of serving the family as something of a day room used for sleeping in only extreme cases, designs in agreement with the requirements of vernacular peasant and worker "functionalism" became rooms barely useable as sleeping annexes due to their relatively small size.

The situation was only different in housing designs designated for the less affluent families of the intelligentsia, usually recruited from the lesser gentry, who strongly tended to have a home that was at least professedly freed of the cumbersome homestead functions with as large a play-day room as possible. This resulted in an isolated, specialized small kitchen, supplemented by a pantry, and found broad application in the national model home for clerks and office workers starting with around the year 1910.

Taking advantage of the garden surroundings of both rural and suburban houses to alleviate their small indoor surface areas used for leisure, common eating, and family activities, architects tried to increase this area, at least seasonally, by sometimes arranging for small verandas. As a savings, these were usually not in the form of porches in the front of the house, but rather small corner rooms extending from the front, beneath the house roof and supported on two sides.

Polish designers of "humble shelters for the gray working army," forced by the high prices of land near cities to save on the lot's garden space, became increasingly sensitive to the use of familiar local solutions in residential architecture after the year 1900. By the end of the first decade of the 20th century they saw an opportunity to increase usable area and to functionally segregate the interiors of ground floor homes by adapting the as yet unused albeit significant attic space for housing purposes—space that in the Polish tradition was hidden under steep roofs. In this simple and inexpensive way, without departing from local architectural models and without increasing the built up area or lot area, it was possible to acquire space for setting up one or even two additional habitable-bed rooms in even the humblest house by merely adding the cost of introducing an interior staircase into the hall and installing dormer windows in the roof.

An analysis of designs developed both before and after the 1st World War demonstrates that Polish architects devoted no less attention to the proper—in terms of planning, technology, and sanitation—layout of toilets than to the size and character of the kitchen, the number and placement of bedrooms, and the providing of a play-day room in the small home. In line with the principles of modern hygiene, including areas lacking in sewerage, a toilet had to be located in or alongside each residential building as well as meet defined sanitary-technical-planning requirements (legally mandated in Galicia as of the end of the 19th century).

In line with the lengthening of the list of facilities deemed vital even in the case of the least expensive of single-family homes, the recommended habitable area increased while the house plan became increasingly more complex. Under the influence of the ideas of the "fighters for beauty"—John Ruskin and William Morris—starting with around the year 1910, even plans for the most frugal dwelling unit designs devoted increasing care to purposefulness, comfort, and beauty as well as the adapting of the layout and furnishing of the house to meet the individual tastes of its inhabitants.

From that point in time, depending on whether they were designated for small-holding farmers, workers, or clerks, architects began to recommend programs encompassing not only a hall, kitchen and small pantry, but also one to three habitable rooms as inexpensive single-family home model dwellings. In the case of urban and suburban homes, this also involved a toilet or even bathroom with increasing frequency. "In the eyes of the prewar generation" this was seen as "an expression of comfort or even luxury." From the time of the Great War, however, these matters gradually moved to the forefront of questions addressed in residential building design. In parallel, designers began to take urgent care that each and every habitable room, in its placement in terms of orientation, shape, as well as placement of windows, doors, furnaces, and with respect to other rooms, be properly laid out and, if possible, not be a walk-through room. Thus, architects made every effort so that all facilities were grouped in line with the function they served (residential-representative and official-ancillary) and were accessible directly from the hall, where connections between the rooms were only made when this was dictated by specific functional requirements. Moreover, in striving to utilize sunlight and fresh air in urban and suburban housing, designers paid attention to the location of the room with respect to the garden with increasing frequency.

In parallel and in the spirit of the "new art," which in accordance with its guiding concept should "penetrate everywhere and shine on every work and all of daily life," care was now taken with respect to the overall aesthetic of the house. In the case of layouts of residential interiors, it was linked with "strict practicality and the greatest of simplicity" of architecture and furnishings. This was true even for inexpensive housing.

And so, housing reform was initiated around the middle of the 19th century. It was intent on solving the question of dwellings for "humble people earning a livelihood by the work of their own hands." Originally it was primarily limited to the moral and health aspects of the rural and urban dwelling. As time passed, matters of comfort were also looked into on the basis of the concept of the garden-city, including urban homes surrounded by gardens. Under the irresistible impact of the "English house" and "applied art," what was finally developed over the first two decades of the 20th century became the basis for modern principles of designing and planning houses, which were creatively developed in building construction throughout the interwar period and even up to the end of the 20th century. It was these principles that became the basis for transforming the 19th century dwelling—where "every room could serve every use, depending on the will of each and every occupant, with a clear designation for a previously defined purpose of only the dining room"—into the contemporary home made up of a "suite of rooms forming a complex containing the whole of the interior order, with its subordination, moderation in size and height, convenience and pleasant spatial proportions, with an exterior that is unified in expression and clearly speaks of the designation of the house."

Types and Stylistic Formula

The years 1908–1914 were a pioneering period. It was then that the Polish rural countryside was introduced to the "familiar" hut model, which was fully adapted to the needs of the "small" farmer and molded under the influence of the concept of the garden-city as a modern housing model for suburban estates and settlements. What was particularly "loved and clearly supported by architects" and hygienists was the free-standing single-family house on a garden lot. This was considered healthy and "beautiful" living, a type ideally in agreement with domestic tradition in a country considered agricultural in nature as was Poland from at least the end of the first decade of the 20th century. This type provided the family inhabiting it with a sense of complete independent and liberty, while hygienists and architects had enormous freedom in forming rational and healthy, planning and material-structural solutions that were simultaneously adapted to Polish customs and the requirements of modern housing culture. This type of home was also highly prized prior to the war, during the initial years of Polish statehood. It was then that the wave of "independence" enthusiasm strove to foster a stronger sense of local and national belonging among the bulk of the citizenry "by settling each and every craftsman and worker family in a separate property owned by them, if possible, that was to pass from father to son."

However, time demonstrated that in practice, the preferences of Polish architects, hygienists, and politicians, which were based on ideological-architectural-patriotic premises, proved wanting in the case of the modern model of the single-family house surrounded by a garden. It only had a broader presence outside of rural areas in inexpensive housing construction of the years 1918–1929. Barriers working against this model were primarily economic in nature. Apart from the relatively high costs of day-to-day use, there was the relatively high price of urban and suburban land.

As of around the second decade of the 20th century, it was buildings encompassing several dwelling units that became dominant among the various types of housing being designed with the poorer denizens of the garden suburbs and settlements in mind. Such housing did not stir any concern of a sanitary or utilitarian nature among contemporaries and had the undeniable advantage of potential to "turn a profit."

The first attempt at a detailed systematization and assessment of the usefulness in popular housing construction of various types of small "garden" houses was undertaken in 1923 on the basis of the domestic and foreign experience of architect Władysław Borawski. He examined their faults and benefits within the framework of two basic categories—i.e. *single-dwelling* and *multi-dwelling*. Among these, he ranked the former as not very useful, in spite of their "high value" in urban and suburban inexpensive building construction. Like prewar promoters of the ideas of Howard, he saw the future of modern, mass-produced, individual "garden" building construction in single and two-story building assembling together several dwelling units. In his view these could successfully guaranty the fulfillment of the desire to "hold a small private *empire* in the form of a home and a piece of land" even in the case of the less well-to-do social layers.

As was the case prior to the year 1914, the single-dwelling home that was closest to the "ideal" of hygienists and designers in the nineteen-twenties was the semi-detached house. It was most often applied in the form of two story buildings formed by a set of two identical single-dwelling segments in European rural and urban building construction for workers from about the mid-19th century. There was a more economic form mostly common to Great Britain: a house consisting of two-story residential sections with each level sporting two autonomous dwelling units provided with independent stairs.

Semi-detached houses, albeit ground story ones, were also built on Polish land from at least the 18th century as a residential model for farmstead housing as well as for factory housing in the 19th century. Thus, it was also in this single-story version, provided with attics beneath steep roofs in line with local building tradition, that architects most often tried to introduce this form both before and after the war as worker and clerk, suburban and factory housing estates. However, in spite of its numerous benefits, the semi-detached house model in its uneconomical ground floor version was, in practice, rarely used in urban and suburban popular building construction in the nineteen-twenties due to its relatively large lot requirements. This ground floor form found broad application almost exclusively in poorly urbanized areas. It was rather exceptional in housing estate construction on more expensive land. Even there it was usually modeled on the more economic British versions—a two story building with one small independent dwelling unit on both levels of each segment, with common staircases and sanitary facilities.

Polish designers of inexpensive urban and rural worker houses were guided by economic calculations. For this reason, they usually reached for the type of building that held four to eight dwelling units under a single roof during the nineteen–twenties. Although in many respects they were not equal to the single–family detached and semi–detached houses, they did guaranty the units with easy access to light and air as well as contact with the garden. What is more, even in their ground floor versions they made possible both a significant lowering of operating costs, better utilization of the surface area of the small lots, and full utilization of the structural members of the building.

Around 1910, as was the case in Western Europe, inexpensive buildings containing several dwelling units were also being designed on Polish land for garden colonies, settlements, and farmsteads in line with two basic planning schemes. One was the "crosswise–inside" scheme where four repeatable single–dwelling sections were grouped under a single roof. The other was the "row" scheme making possible a theoretically infinite number of repeatable dwellings–segments forming a single building. In the building practice of the nineteen–twenties, the "row" scheme, both in the countryside and in cities, was usually used to build houses encompassing no more than six or eight dwellings–segments. This was for architectural, fire–prevention, and health reasons. The central section was a set of single or paired mirror images of dual–tract repeatable sections. It was flanked at its extremes by end segments closing the composition.

Analysis of design materials from the 1918–1929 period shows that the "crosswise–inside" scheme, widely used in Western Europe in factory housing estates from the mid–19th century and rather universally in farmstead housing up to the 20th century on Polish land, was not particularly recognized among the designers of model urban and suburban garden colonies and settlements in the independent Poland. The reason for the drop in its popularity seen in the nineteen–twenties was the planning difficulties for guarantying identical good lighting and proper ventilation in dwellings directed in different directions.

What is known as the "familiar" direction remained "in force" throughout just about the whole of the first decade of the existence of the independent Poland in the design and construction practice of urban and suburban as well as to a certain extent rural single–family buildings. The characteristic "local" form of the suburban manor or country house—already known as the manor house style—had already "matured" prior to the year 1914. It began entering design and building practice on a broad scale under favorable conditions for implementation thanks to an atmosphere of traditionalism present as of the first years of the Great War that was strongly awakened not only in Poland, but throughout the whole of a Europe readying itself for reconstruction in the wake of destruction.

Following the passing of the "Zakopane style" [highlander style] around 1908, the movement fostering a rebirth of national architecture on the basis of local themes concentrated on a desire to solve the housing question on the basis of the ideal garden–city. Starting as early as around the year 1910, proponents of the concepts of applied art and Modernism deemed the future "Polish residential building" as ultimately being the suburban manor house—the traditional house of the gentry. Such housing was rather universally considered to be strongly united "with society not only in terms of the architecture of the building exterior, but also the interior layout, approach, and garden" in Poland. At the same time this form was relatively well understood by architects thanks to the plethora of convincing design materials accumulated over the years 1903–1909 by virtue of both the building of individual commissions and numerous architectural exhibitions and competitions.

However, in the category of architecture for a small “dwelling for the modern man,” the possibilities for the practical utilization of the manor house motif paraphrased in a Modern way in order to create contemporary architectural forms was yet to come. It did not appear in its entire expansiveness until the results of the competition for “a manor house or Polish residential building at the Jubilee Exhibition in Rome in 1911” as well as the Cracow Exposition of Architecture and Interiors in Garden Surroundings preceding the competition for “five types of houses in garden surroundings for various layers of the population” organized in the year 1912.

Thus, the results of the above mentioned competitions and exhibitions should be acknowledged as the basis for the development of the repertoire of architectural motifs and forms that became the stylistic basis, appropriately made to measure to meet the needs of humble, rural and urban single-family housing construction in Poland at the end of the nineteen-twenties and especially during the period of postwar reconstruction. As time passed it became a formally simplified version of what was known as the manor house, *vel* “familiar” style. “Style” in rural construction was directed at the stressing of themes that were “strongly tied with the folk tradition.” In the case of the architecture of cities and suburbs, the main source of motifs was taken from a repertoire derived from Polish Baroque, “Empire,” and Classicism, to which designers often introduced elements of English cottage architecture, so admired in Poland and underscored by a characteristic formal moderation.

After 1925, the modernized forms of the rural and suburban manor house, transplanted to urban and suburban areas, gradually turned out to be “helpless” in the face of the social and housing demands of the twenty interwar years. To a significant degree, these were characterized by conditions of constantly growing housing shortages, especially small dwelling units. Władysław Borawski seems to have observed a certain inadequacy of often exceptionally exaggerated forms of the manor house style as compared with the reality of popular housing construction. However, expressing his contentment that housing architecture “is once again stressing the element of beauty” and “is again displaying it in a familiar, local way,” he coaxed designers and investors to “faithfully copy ancient patterns for today’s needs,” but without “exaggeration and cheap sentiment” so that in designing they should take into account the fact that “our daily lives defer from times past in more than one respect, including the external and internal expression of the residential building, which should identify with a collaboration with that life.”

The Functional “Inexpensive Own Home” (1930–1939)

Interior Program and Layout

As of the end of the 19th century, the most important and most gratifying experimental field for housing reformers—starting with Muthesius, through Wright, Loos, all the way to Gropius and Le Corbusier, including the Polish Syrkuses, Lachert, and Szanajca—was the free-standing house-villa. It was treated by both foreign and Polish architects as “something of an architectural and technical *five finger exercise*, vital for grand social tasks.” Its plan, ultimately freed thanks to the application of the most up-to-date structural engineering, was only limited by the locations of the “sewage, heating, kitchen, and circulation” stacks. It, like no other type of residential building, facilitated the step-by-step introduction of increasingly radical functional and planning reforms. Starting with modifications to the dimensions, orientation, furnishings, and technical equipment of individual rooms, all the way to the transformation of the entire dwelling interior in terms of the assigning of each and every residential function (representation, eating, leisure, sleeping, dressing, washing, cooking, etc.) and each and every family member or resident an appropriately molded and equipped space.

In line with the contemporary needs in the life of the individual and community, apart from flexibility in the spatial organization of the dwelling unit, one of the most novel elements of the transformation process of the house-dwelling (in many respects merely the development of housing reform directions and themes undertaken within the framework of the structure of the English house as early as the end of the 19th century) was its program-planning and technical adaptation to achieve a maximum efficiency and effectiveness of utilitarian functions finalized in the second half of the nineteen-twenties. What designers tried to accomplish was mainly the programming of household activities just like technological processes in the manufacturing of a machine on the basis of Taylor principles—i.e. the scientific organization of industrial work. What was favored in the early "placental" phase of functionalism in the second half of the nineteen-twenties was its comprehensive implementation within the whole of the dwelling. In its later "liberated" phase, the principles introduced during the restrictive "placental" phase were only applied to those parts of the dwelling unit that had "strictly detailed utilitarian functions [...] and could be dimensioned very economically (e.g. kitchen, dining area, bathroom, sleeping area, dressing area, etc.)."

The free-standing villa—the *Machine a habiter* in its reformed shape—met the whole of all advanced living needs of contemporary man. In the second half of the 20th century it laid down the ideals and program-spatial framework for the functional dwelling in and of itself, without answering basic housing questions, however. The most pressing question was a small dwelling for the mass user. Thus, after the first real, albeit expensive, construction work to manifest housing functionalism in 1927 at the Stuttgart "Modern Home" exhibition, matters of program, and primarily the shaping of popular plans for small dwellings as the most important problem facing modern architecture, was tabled at the 2nd International Congress of Modern Architecture in Frankfurt am Main in October of 1929. The history of contemporary architecture has remembered the presentation of the housing achievements of Ernst May (including typical bathrooms as well as what is known as the Frankfurt kitchen designed by Grete Schütte-Lohotzky) as well as the Smallest Dwelling exhibition, which summarized the latest achievements in the field of designing small dwellings presented on 200 charts. By spring of 1930 this exhibition was shown in Warsaw together with an exposition of the new designs by the Social Security Administration Architectural Office (BAZUS) as well as designs awarded in the Competition of the Ministry of Public Works and presentations of substitute materials and twenty furnished homes in Colonies III and IV of the WSM Housing Estate in Warsaw's Żoliborz district.

The social-economic and architectural aspects of the design of popular, functional dwellings, including dwellings in single-family houses, were already identified and developed by the year 1929—at least to a certain degree (by the young generation of Polish architects and housing activists). Of singular importance in Poland for the crystallization of the functional edition of small-scale housing architecture was the year 1926. That was the year of the presentation in Warsaw of the 1st International Exposition of Modern Architecture, the appearance on the Polish market of a translation of Christine Fredrick's handbook entitled *Household Engineering* coupled with the publication of the first issue of *Praesens*, the quarterly of Modernists (with the design for a "row house near the workshop" in which Szymon Syrkus tackled the problem of building standardization, the rational utilization of space, and making flexible space), the presentation at the "Home and City" exhibition of the design for a semi-detached house by Bohdan Lachert and Józef Szanajca so highly rated for its "internal content and purposefulness of every architectural element," and the conclusion of the "Inexpensive House" competition in Lwów (Lviv) where the designs of groups of homes by Bohdan Lachert, Józef Szanajca, and Lech Niemojewski were deemed a sensation thanks to the striking simplicity of their architecture and the clarity of their flexible plans. In other words, this was a year of occurrences that, on the one hand, strengthened the conviction on the part of domestic architects that "only the total transformation of construction methods can result in cheap and good dwellings for the proletarian masses—both workers and the working intelligentsia," while on the other hand, giving strong foundation for the revision of old and the defining of new design and technical guidelines whose broad implementation, as was hoped, could finally create the "possibility of building such houses where dwellings would be sufficiently large while being in agreement with hygienic and cultural requirements and at the same time inexpensive."

In their collision with the real world, the newly developed design and technical guidelines began to gradually and ever more clearly evolve from construction-material problems and questions of industrialization of housing production to matters of the standardization and normalization of their plans in the rhythm of changing economic and social conditions at the turn of the nineteen-twenties and thirties. Thus, the direction was to unify, simplify, and make more flexible the planning of dwelling units as well as the intensification of the utilization of their useable floor area on the basis of the Taylor principle of work organization, ultimately leading towards a limiting of floor area. This especially occurred around 1931 when it became clear, at least in Poland, that the mass construction of inexpensive small homes on a wider scale, especially in the case of single-family buildings, will continue to be primarily developed using traditional technologies and materials.

Ever since the nineteen-twenties, designers considered it obvious that the solution to the problem of a small, inexpensive dwelling that meets hygienic and functional requirements in a single-family house was not possible by way of simple reduction and simplification of some ideal plan for an expansive, functional villa. Teodor Toeplitz noted with great accuracy on the threshold of the government campaign for supporting small-scale building construction in 1932 that "a small home is not a miniature big home, [...] a small suburban house is not a reduced villa or palace, but a compact whole in and of itself."

In order for that "whole in and of itself" to be developed in line with the principles of functionalism, normalized and adapted to diverse housing needs and requirements, it was first necessary to identify in detail a diagram of the basic activities carried out in a small house, define a schematic of their execution, and group them appropriately into household, eating, day stay, and sleeping functions, to ultimately assign them to appropriate space of useable dimensions, shape, circulation links, and location with respect to each other and the points of the compass in the house-dwelling. Moreover, it was necessary to define if the character of the space should be fixed or flexible, closed or open, keeping in mind the types of functions filled by it.

The development of principles of shaping a uniformatized, "complete," "self-sufficient," and functional small dwelling unit in a single-family house was impeded for a long time due to the functioning of two essentially different models in Poland. One was the model home for the "worker family." There, in line with worker-rural tradition, it was the focussing of residential and household functions on a large habitable kitchen facility that was considered "simplest and most comfortable." The second was a model adapted to the customs of white-collar workers who differed "from workers primarily through their need to work intellectually in the home [...] where usually several family members were gainfully employed, social life was more expansive, and there was the participation of assistance in the household." Taken all together, this led to members of intelligentsia families to strive to have their own rooms.

It is for this reason that as late as the beginnings of the nineteen-thirtiues, the average worker home in a single-family building in Poland was shaped on the basis of a program encompassing a large habitable kitchen, one or two other rooms, and a toilet (or more rarely a bathroom). For its part, a humble "intelligentsia" *vel* clerical worker home was assembled from a small kitchen facility, two or three habitable rooms, a bathroom and toilet, where the minimal program almost always included a servant's room or at least what was termed a "niche."

During the good economic period of 1927–1929, which allowed architects to put quality and comfort over matters of rent, the surface area of both worker and intelligentsia dwellings was not overly restricted. Floor area standards oscillating in the range of 50 m^2 – 70 m^2 [538 sq. ft. – 754 sq. ft.] as established earlier in light of hygienic requirements, which were maintained.

Repeatable single-family houses were used in worker building construction up to about 1930. A steep-roofed semi-detached or row ground floor building—deeply rooted in Polish tradition—was most eagerly reached for. There, on the ground floor, usually from the front, was a habitable kitchen accessible from the hall, sometimes with a sleeping area separated by a screen, with a bedroom on the garden side accessible from the kitchen. All ancillary and household facilities were grouped near the garden hall, behind the habitable kitchen. Usually, it was the attic, with its one or two small rooms, that was utilized for living purposes.

As can be seen from the above, in respecting the traditional model of worker family life, the introduction of principles of functionalism in dwelling units designated for them was possible only in a very restricted range. In practice, this came down to a mere grouping of certain rooms by function, limiting circulation space (which usually resulted in the creation of walk-through rooms) and attempts at defining the proper shape and sizes of multi-function rooms in terms of the character of activities carried out in them as well as the arranging of the necessary equipment.

The programming-planning principles of functionalism under conditions of the "culmination of our prosperity" found significantly broader application in the design of inexpensive two story houses for clerks. The concept of a flexible plan made it possible to almost fully realize the traditional life model of a humble intelligentsia family, even in very small dwelling units. Thanks to the application of lightweight and sliding partitions, it was possible to satisfy both the need to have isolated small rooms for various functions as well as, if needed, a large space for social gatherings and representation. Moreover, the model life of an intelligentsia family, where the traditional kitchen tended to fill purely "technological" functions were met by designs executed in line with the principles of household engineering—a type occupying little space and forming a modern functional, laboratory kitchen. In its turn, the introduction of segregation of function in the clerical houses fostered, with increasing frequency, the application of two-level layouts. Thanks to this it was possible to easily separate the common space and connect it with the garden from the section found on the second floor that was filled with "sleeping chambers" making up the intimate part.

A successive breakthrough in the design of inexpensive, small dwellings in single-family houses occurred in 1930 in step with the economic crisis. It was then that the freely developed to date functionalism in both apartment blocks and single-family buildings became dominated by construction costs and rent levels that now had to be adapted to the lower standard of living of the inhabitants. As a result, the "*comfortable* dwelling slogan had to be reversed to become *possible*." In popular residential construction, including the particularly interesting single-family house construction, there came a period of dwelling construction where programs and layout were a "compromise." There, on a small surface area, maintaining the principles of subdivision of the interior into the general access section and that designated for residents, efforts were made to locate at least a kitchen or kitchenette, one larger room, one or to smaller rooms, or at least bedroom alcoves, and a hall and the necessary sanitary facilities.

During the times of the economic crisis, the primary problem facing designers of houses – single-family dwellings was how to "create maximum comfort—good living conditions—in a minimum of space and for a minimum price." Apart from designs using the concept of a "growing house," a possible solution was radical rationalization and the simplification of the dwelling layout, mainly in terms of maximum utilization of surface area. This was attempted through both a maximum reduction in area and utilization of multi-use household equipment.

In the context of the maximum utilization of the surface area of small dwellings, as of the start of the nineteen-thirties the laboratory kitchen (known as the Frankfurt kitchen) grew in popularity. Thanks to an arrangement in line with the technology of household work and specially designed equipment, its floor area can stay within 5 m^2 [54 sq. ft.].

The problem of the functional shaping of residential interiors, at least in the case of cities, was also tied with their equipping in ever more numerous and costly technical systems. It is for this reason that a very important question in design, especially in the design of inexpensive units, became a striving to maximize the limiting of the number of vital vertical stacks for water and sewage connections as well as gas connection at this time. Plans of small dwellings of the nineteen-thirties demonstrate this by their molding of a well-ventilated kitchen and toilet as a compact block of rooms.

An even more difficult design task faced architects when floor area standards were established at a level of 42 m^2 [452 sq. ft.] in 1934 by government funds providing credit for welfare dwellings in single-family houses intended to satisfy the "most primitive needs of the enormous masses of pauperized workers" as well as white-collar workers. This made possible the design of dwelling units encompassing barely one, or a maximum of two habitable rooms, a kitchen, hall, and sometimes a tiny toilet as well as an attic where it was possible to put in an additional room through one's own effort. The only way to supplement program deficiencies, at least in part, was to spin off a portion of the household functions to general access housing estate nursery schools, meeting halls, reading rooms, laundries, and baths that, in light of credit restrictions, were, in practice, built exceedingly rarely in the least expensive single-family housing complexes, however.

The design principles of functionalism as well as the concept of the "growing home" and the markings of civilizational progress were broadly reflected in typical designs for the smallest dwellings-houses for small-holding farmers much later than in the case of inexpensive single-family buildings in the suburbs and factory housing estates. This did not occur until around the year 1936. These, "in contrast to the needs of housing construction in cities, were not only a "place of residence for a family made up of several members, but also [...] for a part of the storage space for agricultural equipment." Thus, it was not only due to the specifics of rural location, but also in light of their dual—residential and agricultural—functions that they required adapting to completely different conditions than their counterparts designed "for blue and white-collar workers in the city, providing them with gas, electricity, sewage, water, and other conveniences." This is also the reason why architects working in the second half of the nineteen-thirties on raising the residential culture of the rural countryside, including the creation of conditions facilitating the rational organization of household chores and leisure as well as the providing of a bathroom in even the simplest rural home, directed their major design effort in a direction that was completely different than in the case of cities. This meant that primary efforts were directed at "seeking out an economical building volume by way of observing the proper layout of the plan" as well as the "finding of the appropriate solution for the layout of fire equipment." By 1938 this bore fruit in designs for typical rural houses with floor plans approximating a square in shape, with dwellings having a minimal area arranged around a centrally placed chimney serving a set of painstakingly designed fire equipment.

Building Types and Forms

Among the above mentioned trailblazing architectural accomplishments achieved in Poland in 1926 in the development of modern models for various types of urban and suburban popular single-family houses, the greatest impact was had by the results of the competition organized using the slogan "Inexpensive Home" by the organizational committee of the First Polish Nationwide Building and Road Exhibition in Lwów (Lviv). It was amidst creative artists still using traditional planning schemes and the manor house style that there appeared designers of inexpensive single-family houses (semi-detached and "densely" built up) for the first time on a broad national architectural forum who finally attempted to "rip away from the heart and mind certain as yet unmoved concepts of home [...] and take in the concepts of the house-tool, house-series, health (including morality) and the beautiful aesthetic of the working tool."

Following the lead of avant-garde designers from the circles of the French *Espirit Nouveau* journal, the German Bauhaus, or the Dutch De Stijl and on the basis of principles of functionalism and utilitarianism, their were competition design authors took up the effort to retreat from current formal-program-planning housing patterns and break away from the ways of thinking about single-family houses in force, which were marked by "familiar" attributes of an individually composed architectural creation. Undoubtedly, the most novel and creative was the already mentioned work awarded one of the first two prizes—the work of three young architects from Warsaw tied to the Praesens group—Bogdan Lachert, Lech Niemojewski, and Józef Szanajca. The work was not only marked by the application of "flexibility" of dwelling layout formula and interior as well as exterior architecture strongly derived from function, but also great creativity in the realm of molding various types of "serial" dwelling - single-family houses adapted to the needs of the economical in construction and operation modern mass building model.

The opportunity to develop and firmly root single-family "serial" design and construction methods in popular building construction did not come about until the housing campaign initiated by the government in 1931. Time has shown that its dissemination turned the "modern Polish home" into a mere "copy of its foreign prototype, not an expression of our local climatic and living relations" for many decades. Architects were required to develop entire sets of typical single-family house designs that were economic in construction and operation, appropriate for mass copying, and rationally planned. For their part, decision-makers and activists were responsible for their wide-ranging propagation. During the first phase—up to about 1932—due to the financial potential, needs, and tastes of small investors, this campaign was concentrated on the development of functionally planned typical single-dwelling house models, mainly harking back to traditional forms—ground floor buildings with steep roofs—and based on what was known as the idea of the growing home. It was not until the second phase—from the year 1933—that the focus shifted to the design of typical building groups—semi-detached and row housing—that in terms of architecture was shaped on the basis of the assumptions behind "international" functionalism in its program-planning layer as well as functional layer.

It was as a part of intense design studies that were performed with great effort under the auspices of the National Economy Bank (BGK) to meet the needs of the government campaign for developing individual housing construction over the years 1933–1934 that the two basic types of standard single-family building group sections were finally codified. These were the "paired" section, which was capable of being used in both row and semi-detached housing and was beneficial in terms of both economy and architecture, and the "single" section type, which could be used "in pairs" or as a "half" of a semi-detached house after being supplemented to become a standard "edge member." After the addition of a sanitary-household annex, both types could be used on land lacking sewerage.

In discussing types of popular single-family buildings from the nineteen-thirties, it is not possible to not mention "necessity" houses-dwelling units that were strictly adapted to the needs of the unemployed or the financial potential of workers and low-pay clerks. Starting with the year 1934, these were designed and built by the Worker Housing Estate Society (TOR), and also by the Association of Allotment Garden Societies and Small Suburban Housing Estates (ZTODiMO) as of 1938. They were usually designed in a traditional form on inexpensive, semi-rural, undeveloped land, which means that they had a timber ground floor (rarely brick masonry) and were covered by a steep roof in the form of semi-detached buildings. Suburban housing estates, for their part, were planned as kernels for new housing districts in traditional or functional form, single or two story, brick masonry row housing of the "grouped villa" type, or as settings of two-story, two dwelling segments covered by flat or low roofs—semi-detached buildings.

The architecture of "necessity" social single-family houses – dwelling units, as was the case with "serial" houses built within the framework of the government campaign for the development of small building construction by individual investors, clearly reflects that characteristic stylistic-formal duality of small-scale national residential building construction of the nineteen-thirties. This duality was a symptom of the battle being waged as of the mid-nineteen-twenties in Poland between two architectural streams of Modernism—the familiar-classical and international. These two streams were generally at peace by the nineteen-thirties as to the principles of building the functional-spatial framework of modern, minimal house-dwellings. Thus, rural as well as urban popular single-family building construction usually coupled what was known as "functional" vernacular with the requirements of modern household engineering quite agreeably. However, these architectural directions continued to differ in matters of style and principles of shaping the building form. In the architecture of inexpensive "garden" houses that by their very nature surrendered in a problem-free manner to modernistic matter-of-factness, economy, and utility, this found expression in the nineteen-thirties primarily in the parallel application of various roof forms. In some cases this meant multi-slope, steep, traditional roofs. This was still considered most appropriate for inexpensive single-dwelling and semi-detached houses, especially rural ones, by many designers. This was not only true as a result of the fact that their steeply sloped forms were in agreement with Polish building custom and climatic conditions, but also due to the potential for easy creation of additional living space in the attics. In other designs and construction projects, the geometric volumes of humble single-family houses were covered by low or even flat roofs. Architects susceptible to the fashionable slogans of constructivism, utilitarianism, and economy, considered these not only a roof covering that was safer with respect to fire and supposedly less expensive, but primarily very modern. It allowed even the most humble of houses to approach the ideals of what was known as the "international style" through form that was clear of familiar expressive items and ornaments—just a smooth housing "cladding."

The architecture of popular single–family houses, like multi–family apartment buildings, continued to be far from "achieving [...] a whole" of formal unity at the end of the nineteen–thirties in Poland. This architecture tended to remain in the phase of "thought and examination of conscience." This seems to be univocally witnessed by the appeal of Stefan Tworkowski directed to architects working in the field of housing in 1939, when he stated: "Let's review our drawing–oriented and soulless approach to architecture, let's put away our T–squares for just a moment, and let's go see our achievements in the real world and look at the works of our predecessors. Then we can take a step forward."

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