Innovative concepts in the Kharkiv projects of J. Steinberg of the capital period

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Abstract. The innovative concepts of Jacob Steinberg, one of the leaders of constructivism architecture, the head of the Society of Modern Architects of Ukraine (OSAU) are considered. The projects of J. Steinberg by the purity of functionalist literacy are comparable to the projects of leading OSAU masters. Among Steinberg's Kharkiv projects - recognized as masterpieces of constructivism - the Builders' Club, the building of the Central Committee of the CP(b)U, a complex of the Kharkiv Civil Engineering Institute on Shatilovka, a residential complex on the Pushkinsky entrance. The unique Steinberg's objects, that were revolutionary for their time, weren't taken under protection and today they have been lost, rebuilt, or are in ultimate limit state. His legacy is still waiting for his collectors, organizers and researchers. Comprehensive research is needed, on the basis of which it will be possible to develop a strategy for documenting and preserving the Kharkiv objects of an outstanding Ukrainian architect. This applies to the possibility of complete restoration of the houses at the Pushkinsky entrance, removal of distortions introduced into the building of the Builders' Club during the post-war restructuring, graphic reconstruction of the lost Central Committee building and irreversibly rebuilt complex of ex. KhICE. The report discusses the prospects for the formation of citywide and national programs for research, documentation and preservation of the architectural heritage of interwar modernism.

Introduction

Jacob Steinberg (1896-1982) - an outstanding local architect-constructivist, the author of a number of original projects and implementations in Kharkov, Kiev and other cities of the former Soviet Union.

Jacob was born in Kiev and received here an architectural education in the Kiev Art Institute in 1925. The commitment of the young architect to the ideas of the avant-garde is evidenced by the fact that in the 1923/1924 academic year he refused to do a course project "in the proposed styles" [1]. The administration of the institute regarded this as a rebellion and Steinberg was threatened with expulsion, but the conflict was settled and students received the unspoken right to carry out their projects without reference to historical styles. The level of ambitions of the young architect is approving by the fact that as a graduation project, he (in collaboration with I. Malozemov) completed a competition project for the House of State Industry in Kharkiv (Gosprom). His project under the motto “Screw” participated in the competition along with the projects of 17 other contestants and received one of the prizes [1]. In this first major project of
Steinberg, the author’s handwriting was not yet fully disclosed. The building aims towards the classic composition of volumes, and the pitched roofs of the two central towers, although they enliven the silhouette, makes the building look a bit archaic.

The grandiose construction site of the Gosprom built under the project of Leningraders S.S. Serafimova, S.M. Kravets and M.D. Felger, became for Steinberg the first responsible place of work. Here he became the foreman of one of the construction sites, and later went to work in the design office. Since it turned out that the metal large-format windows that were provided for by the project could not be made at Kharkov factories, all the wooden windows of the building were done according to Steinberg’s project. Traditional designs of wooden frames did not match the avant-garde image of the building. Based on the sketches of Steinberg, several variants of wooden frames were done, which were subsequently installed in the window openings of the already built southern wing of the building [2]. Thus, the most successful option was chosen.

Due to the acute shortage of qualified personnel of builders and architects, the design teams established at large construction sites had particular value. One of such groups of specialists who worked on the construction of the Gosprom industry headed by Steinberg became the basis of the architectural sector of the Industroy or, in other words, the All-Ukrainian Design and Construction Society "Construction Industry" (Industroy). Steinberg worked from 1928 to 1934 as the chief architect of this organization. Mostly, the company was engaged in the construction of industrial buildings of various profiles. Among them, Steinberg personally creates a project of sugar factory at Vesely Podil station near Kharkiv.

Industroy also took an active part in architectural competitions. Five years after the competition for the Gosprom building, Steinberg took part in the competition for the project of the Theater of Mass Musical Action in Kharkiv. 145 projects from different countries was submitted to this international competition. The project, carried out by Steinberg in collaboration with Yu. P. Afanasyev, V. P. Kostenko, M. L. Movshovichem, R. M. Friedman was submitted to the competition on behalf of the Glavproekt. The consultant of the project team was the artist of the theater V. G. Meller [3]. Unfortunately, the competitive projects of the Theater of Mass Musical Action were lost during the Second World War. After the creation in 1934 of the organization Tsivilbud on the basis of the Industroy, Steinberg headed their architectural department and led it until 1936. After that, until the Second World War, he led the design teams of various organizations. J. A. Steinberg conducted a public activity by leading the Association of Modern Architects of Ukraine in 1928-1929 [4].

In the evacuation, Steinberg worked as the head of the design bureau of the factory No. 60 in the city of Frunze (modern Bishkek). In 1944, Steinberg had returned to Ukraine and developed a competitive project of reconstruction for str. Khreshchatyk in Kiev (not implemented).

1. The Builders' Club on Sq. Rudnev
One of masterpiece of Jacob Steinberg in Kharkiv - is the Builders' Club on Sq. Rudnev (now the square of the Heroes of Heaven hundreds, 1927-1930, in collaboration with I. I. Malosemoff and I. F. Milinis). This project (Figure 1) is one of the examples of “pure” orthodox constructivism [5]. It is no coincidence that he was among the few Kharkiv projects that were published on the constructivist magazine CA (Modern Architecture), the front-liner at that time [6], along with such projects as the theater of mass musical action (brothers A. A. and V. A. Vesnin) and project of the post office (P.A. Golosov). S. O. Khan-Magomedov included the Builders Club among the hundred masterpieces of the Soviet architectural avant-garde [7].
In the process of constructing the Gosprom, J. Steinberg took part in the creation of a number of collective competitive and custom projects. Among them, the frankly constructivist project of the Builders' club is of the greatest interest. In the same 1927, the young architect took part in two competitions that were highly resonant - the project of the Government House in Kharkiv and the project of the facade of the station in Kiev [1]. In the project of the club Steinberg sought to reveal the image through new architectural forms close to the machine industry, showing the capabilities of advanced construction equipment. The author's innovative approach is reflected in the expressive dynamic composition and the entire volumetric-spatial structure of the building. The facade of the club resembles the Villa Savoy in Poissy, France (architect Le Corbusier) with its horizontal volume and perspective view of the courtyard, but with the addition of a transverse protruding element of a rounded glazed staircase (Figure 2). The inner open courtyard-lobby plays the role of the spatial core of the composition, from which you can get into the various functional parts of the building, the communication of which is also carried out on the second floor. The club scene has two portals: one of which worked in the winter, the other (with an amphitheater designed for 1200 people) in the summer. All this created an original modern architectural image. Since the mid. 1920s the architecture of club buildings was hotly discussed in a professional environment, which led to a gradual shift in the focus of club work from a spectacular theater and cinema zone to a coterie one. This was reflected in design tasks: the using of a small hall becomes more relevant, the club necessarily includes audiences, workshop and exhibition rooms, the number of study rooms, studios are significantly increased, the area of libraries are expanded, the area for working with children, as well as the sports part. In addition, there was a change in the perception of the image of the club, which now had to reflect the ideology of the dictatorship of the proletariat, the revolutionary ideas of the time. In the project of the Builders Club, young authors managed to meet new needs and win the competition. The premises of their club included: an auditorium with 1200 seats with a stage, a reading and lecture hall with 150 seats each, a library with 35,000 volumes, a gym, a canteen, an audience of 200 seats, a number of rooms for clubs, entertainment and recreation, as well as nursery. J. Steinberg successfully grouped the rooms, dividing them functionally into 2 blocks: “noisy” in the left and “quiet” in the right wing of the building. The total capacity of the club was: in the winter - 2500, in the summer - 400 people [8].

During the Second World War, the building of the Builders Club was badly damaged and then underwent two reconstructions: in the 1950s and mid-1970s. The utilitarian approach that prevailed in architecture at
that time led to the disruption of the internal structure and facades of the building. During the reconstruction, the courtyard was redeveloped into a covered hall, the third floor was built on the two-story part of the building, the windows were changed to traditional, the flat roof was turned into a pitched roof, the modernist concrete facade was tiled with ceramic tiles and the inscription with the club name on the facade was removed. As a result, the building has changed beyond recognition, likened to the faceless boxes of the 1960s. It ceased to exist as an example of pure constructivism (Figure 3).

2. The Residential buildings on the Pushkinskyi entrance
Residential buildings on the Pushkinskyi entrance 7, 7A and 8 (1929–1930, co-authored with R. Fridman, engineer V. Trubins) are examples of “academic” constructivism [5]. In the flat facades of 4-story residential buildings, the author alternates horizontal rows of windows and flat open balconies of apartments, the graphicness of which resembles a hostel of the Bauhaus complex in Dessau, Germany (architect V. Gropius), with vertical glazing of stairwells (Figure 4). The accent is enhanced by the protruding parapet in the central part of house number 8, which at the same time fixes the symmetry of the entire complex of residential buildings. The purity of the solution for the composition of the U-shaped residential building with the courtyard (Figure 5), which is revealed gradually in steps to the road, can be compared with the organization of the side buildings of the Project House of the Government Complex on Dzerzhinsky Square, (architect S. S. Serafimov, M. A. Zandberg- Serafimov), built in the same period.

An unique approach developed for the construction of houses on the Pushkinskyi entrance and described by Steinberg himself in the magazine “Budvinitsvo” (Building): “work was oriented on three such indicators: speed of execution; the use of new designs and a new methods; cheapness” [9]. As a result, the
production plan was drawn up with the intention of sequentially carrying out work in such a way that immediately after the construction of the first floor it is cover, allowing, in parallel with the construction of the walls of the second floor, to begin internal work on the first. Thus, during the construction of the fourth last floor, then all floors had already been made intermediate ceiling, black floors, covering, partitions and partial plaster. Following the installation of partitions, central heating, plumbing and sewage were arranged. This innovative approach allowed the construction of the house #8 in 3 months and 3 weeks (the foundation of the house was laid on July 17, 1929, and on November 1, 1929 the first inhabitants moved into the house and by November 10 the house was completely ready to move in). In his article, Steinberg also concluded: “This method of performing work must be introduced at all construction sites, instead the old method, in which internal work does not begin before the building is covered with a roof...” [9].

When designing the house number 8 they chose the rectangular configuration of the object as is more economical. The house is composed of four sections, and accordingly, has four stairwells with two exits (to the courtyard and to the street). A total of 32 apartments have been designed. A typical section is two apartments: one- and three-room, serviced by one stairwell. The layout of the building is asymmetric: the two sections located to the right of the central axis are arranged in a different way: one section is two-room apartments, and the second section is three- and four-room apartments. The house was indebted to its future residents for such “atypicality”: four-room apartments were built for department heads and chief engineers of the Civilbud (Civil construction) Society. When designing the living space, English principles were adopted: the apartments did not have walk-through rooms, most of the walls were freed for furniture. To the great regret of the architects, the rooms were not equipped with standard furniture, however, they hoped that this was a matter of the near future and would soon become a part of the architectural project, citing another capital as an example - “Moscow is already making such attempts in the residential construction of “Mosrada” in this construction season”.

U-shaped residential building, composed of 8 residential sections of two types with a large courtyard and a round fountain in the center, has two addresses: Pushkinskyi entrance 7 and 7a. Each wing of the house had its own customer: the first was built for Giprokoks, the second - for Building Trust 86.

Now, unfortunately, residential buildings on the Pushkinskyi entrance, 7, 7A and 8 are quickly destroyed, most of the original windows were replaced with modern metal-plastic ones, the balconies are glazed, built-in shops with entrance structures attached to them appeared on the ground floors. In the current state, these striking examples of residential complexes of the first wave of modernism cannot even get into the register of monuments of local importance.

3. The Kharkiv Institute of Civil Engineering

Jacob taught at a number of construction and art educational institutions in Kharkiv and Kiev, in particular, at the Kharkiv Art Institute and at the Kharkiv Institute of Civil Engineering (KhICE) created in 1930. This year was a turning point for the structure of higher education in the USSR: by a government decree, many faculties of multidisciplinary universities were transformed into separate higher educational institutions. KhICE was created on the basis of the architecture faculty of the Kharkiv Art Institute and the construction faculty of the Kharkov Technological Institute (now the National Technical University “KhPI”).

Immediately after the creation of KhICE, the construction of a new institute complex was started. The development of the project was entrusted to J. A. Steinberg, at that time an assistant professor of the Faculty of Architecture at KhICE. For construction, a site of 6.7 hectares was allocated in the area of Shatilov cottages. At that time, this area was built up with estates and dachas and was subject to redevelopment in accordance with the general plan of the "socialist reconstruction of Kharkiv", as the capital of Soviet Ukraine. The site was located half a kilometer from the new administrative center of the Ukrainian Republic - former Dzerzhinsky Square, at the beginning of the new central avenue, on both sides of which the complex of educational, administrative and residential buildings of the institute was to be located. On the right side
of the avenue (when viewed from the side of the city center), educational buildings and laboratories were designed. On the opposite side, student dormitories, professors’ houses, a sports stadium and a canteen, which were the second stage of construction, were planned.

In the absence of practical experience in the construction of large university complexes, J. A. Steinberg (co-authors of the project, architects R. Fridman and A. Zaslavsky) applied a new spatial planning concept to the project, which envisaged the creation of a single complex consisting of separate buildings interconnected by warm transitions. Such an organization was called upon to ensure the autonomous existence of all departments of the university and, at the same time, provide the opportunity for quick communication of each of the departments with a common library, assembly hall and other common areas.

The planning structure of each of the educational buildings was also innovative. The project used a combination of corridor and non-corridor planning schemes [10]. The first floor of each of the four-story blocks was designed in transit, it was occupied by vestibules, wardrobes and stairs leading to the upper floors. These functional areas were planned in such a way that noise from students moving along the main transit routes did not interfere with studying in laboratories located on the second floor. The second floor had a corridor layout, the third, on which there were classrooms and rooms for general classes, was corridor-less. On the last, fourth floor there were drawing rooms. Each building had its own nodes of vertical communications, which provided a significant degree of autonomy of the buildings.

Figure 6. The first building of KhICE, 1932 (photo from author’s archive).

Pre-war photographs give an idea of the external appearance of the first KhICE building (Figure 6). According to the principles of functionalism, the facades of the institute reveal its internal structure: the windows of the third and fourth floors are larger than the windows of the first floors, since more sunlight was needed for the rooms located on them. The characteristic plastic accents were glazed volumes of vertical communications that protruded strongly from the plane of the facade, inside of which there were ramps popular in constructivism architecture.

The construction of the first KhICE buildings was completed in 1932 [10]. The design and construction of subsequent buildings took place during the period of obsolescence of modernist architecture and the imposition of the official concept of “development of cultural heritage”. Therefore, the stylistic changes were made to the project.

The KhICE complex was badly damaged during the Second World War. The surviving photographs clearly show the destruction: all the windows were lost (through the empty openings of the staircase of Building A, the ramp replacing the staircases is clearly visible), however, the general configuration of the buildings designed by Steinberg has been preserved. In the post-war years, the building was transferred to the Mining Institute and was restored according to the project of N. M. Podgorny, who was then head of the department of descriptive geometry at this institute. Podgorny used in the project two partially surviving
buildings from the complex designed by Steinberg, however, the appearance of the buildings was fundamentally changed: the main entrances received solemn classical porticoes. The construction of a building with a massive tower, on the corner of Lenin Avenue (now Nauki Avenue) and Serpova Street, marked the final rejection of Steinberg’s spatial concept. However, in the rebuilt building, some elements remind of the pre-war KhICE, for example, semi-cylindrical ledges of stairwells, which are not at all organic for the neoclassical image of the Mining Institute.

4. The Central Committee building
The greatest interest from the number of Kharkov projects J. A. Steinberg represents the overbuilding of the building of the former Provincial Zemstvo for the Central Committee of the CP (b) U. In 1925, the Central Committee of the Communist Party (Bolsheviks) occupied two adjacent buildings on K. Liebknecht Street (today Sumska Street), previously owned by the Provincial Zemstvo. One of the buildings was built in 1900 according to the project of arch. A.B. Minkus, the second was attached close to it in 1914 (architect V.V. Velichko). The facades of both buildings were made in the Neo-Renaissance style. Since these buildings could not accommodate the government apparatus of the Ukrainian Republic, J. A. Steinberg was commissioned to complete the design of the new Central Committee building. The unique concept of his project, which is undoubtedly innovative for its time, the author outlined in the article “Nadbudova budynku CC KP(b)U” [Overbuilding of the Central Committee building of the CP(b)U] at the “Budvinstvto” [Construction] magazine [11]. In this article, the architect not only formulates the idea of the project, but also describes the specific difficulties that had to be encountered during the design.

Instead of demolishing buildings, Steinberg proposed combining them, adding three floors to this. At the same time, the historical facades were preserved in their original form with the complex decor of the Ionic order, and at the same time they were supplemented by a large-scale overbuilding, made in the methods of modernist architecture (Figure 7, 8). The architect argued his idea: “A new house on the street, as a rule, appears between neighbors, each built in its own style ... As a result of the proximity of the horizontal buildings, a kind of dynamic street ensemble arises. Those laws that operate in the horizontal direction should work in the vertical direction: just as the ensemble is formed horizontally, it is formed in the vertical direction ...”

It should be noted that such ideas were unusual for the architecture of early functionalism, which, as a rule, focused on the construction of new buildings, and preserving the heritage of previous eras was not
considered an important task. The idea of vertical zoning of the city was widespread among the supporters of functionalist urban planning, especially among those architects who advocated the idea of compact development of the city. However, the ideas of Steinberg in this case are different in meaning from the ideas of the “vertical city” by Antonio St. Elia and Ludwig Gilbersimer. If the concepts of the latter dealt with the vertical separation of functional zones or traffic flows: warehouses and transport at the lower levels, housing and administrative buildings - at the upper, then Steinberg alternates along the vertical axis of the historical “layers” of the city. The author himself emphasized that his project was completed “in four dimensions”, where the fourth dimension meant time [11]. In the same article, the author reflects on the possibilities of a holistic reconstruction of the historical centers of cities, when "... the overbuilding of buildings along the street is planned in such a way that horizontal belts of overbuilding floors appear under the whole block, under which the gothic and Empire style of the old buildings will remain, and the street, preserving them the ensemble will take on a new, predetermined by plan, appearance”. Steinberg interpreted the three- and four-story overbuilding above historic buildings as “a modern, functionally faithful entablature” [11]. Such an architectural “collage” is more like postmodernism than early functionalism.

However, the design of the overbuilding of two historic buildings lurked many other difficulties. The existing entrance group of buildings of the former Zemstvo (vestibules, wardrobes) could not meet the requirements of the design assignment, according to which the total volume of the complex was to increase 2.5 times. The main staircase in one of the buildings was in the center and was lit only by the upper light, which made it impossible to operate it in a five-story building. In addition, an elevator was required. All this led to the creation of a new entrance group, which took the corner of the current streets of Suny and Svobody. Due to this, on the side facade from the side of Svobody Street, the two-story facade of the 1900 building was surrounded by a modern, modernist facade on the right and left, and above it there are four new floors, which were distinguished by long ribbon windows.

From the courtyard to the building was added a hall for general meetings, designed for 650 seats in the hall and 70 seats on the podium, with a room for stenographers to work. The hall was illuminated with the help of a shed ceiling, the windows of which were not visible to those sitting in the hall, which created a soft and diffused light.

In general, the idea of building the building of the Central Committee of the Communist Party of Ukraine took into account the specific circumstances of the place to a greater extent than was based on the ideas of modernist architecture. After 50 years, Charles Jenks will call this approach “adhokism” and include it in the list of basic techniques of postmodernism [12]. This suggests that the concepts of Jacob Steinberg were innovative for his time. In his projects, he combined the actual achievements of his contemporaries with his own view of the problems of architecture and urban planning.

The overbuilding of the Central Committee building was basically completed in 1931, but the rush during construction work led to the collapse of the plaster of the upper floors during early frosts. Restoration work lasted until 1932. At the same time, it was decided to remove the classic decor from the facades of historic buildings. Thus, the finely traced ionic columns in the facade of the building erected by V.V. Velichko. The decoration was replaced by a series of uniformly rectangular blades in plan that visually supported the overhanging modernist part of the building. Of course, such a change in the facades led to a significant simplification of the appearance of the Central Committee building, and the loss of expressiveness of the author’s intention.

During the hostilities, the Central Committee building was partially destroyed by a direct hit by an aerial bomb and after the war it was demolished. In 1954, a new house was built on this site for the regional party committee under the project of V.M. Orekhova and V.P. Kostenko. In terms of volume, the new building corresponded to its predecessor, however, it was dramatically different stylistically: the facade was made in the style of the solemn neoclassicism characteristic of the first post-war years. The massive columns of the
modernized five-story warrant have nothing to do with the J. A. Steinberg project Steinberg. Today, this building is located on the Kharkiv Regional State Administration.

Conclusions
Jakob Steinberg, one of the leaders of the Constructivism architecture, in 1928-1929 he was the head of the Society of Modern Architects of Ukraine (OSAU). Steinberg's unique projects carried out in Kharkov in 1920-1930 reveal him as a professional and a leader in the era of modernism, ahead of the thinking of contemporaries. His work, imbued with the spirit of innovation in everything - in architectural and planning, structurally and technical and purely compositional, artistic aspects is underestimated and insufficiently studied. His revolutionary architectural heritage, which deserves to be protected, is today have been lost, rebuilt, or are in ultimate limit state.

There is good reason to consider it necessary to create a systematic program for the study of the architectural heritage of J. A. Steinberg, which could be the beginning of a joint company to preserve the heritage of modernist architecture of the city and country, and which will include:

- historical-architectural and historical-cultural studies and documentation of all the famous projects of the author in Kharkiv in accordance with modern standards developed by ICOMOS and DOCOMOMO;
- graphic reconstruction and creation of detailed 3D models of these objects;
- publication of J. A. Steinberg's monograph, as well as the creation of an album of his works by local specialists directly related to the architect or covering his practice in their research, with the possible involvement of a Kiev colleagues;
- conducting public lectures, studying the Steinberg's heritage as part of the curriculum of architectural schools in Kharkiv and Ukraine;
- determination of the strategy for conservation of objects on the basis of research. It seems possible to fully restoration of the houses at the Pushkinskyi entrance, removal of distortions introduced into the building of the Builders' Club during the post-war restructuring, graphic reconstruction of the lost Central Committee building and of the irreversibly rebuilt complex of ex. KhICE;
- definition of scenarios for the development of the city, in which there is a need to restore the heritage of modernist architecture (architectural tourism);
- inclusion of buildings in the registers of monuments of the appropriate level (local, state significance)

Examples of successful research and/or restoration of objects of modernist architecture of individual authors is the work of foundations of such masters as Le Corbusier (created in 1968), Mies van der Rohe (1983), Oscar Niemeyer (1988) or the Bauhaus Dessau Foundation (1996) that dedicated to a separate complex, as well as attracting the world community through a series of conferences dedicated to the legacy of modernist architecture in cities such as Gdynia or Tel Aviv. For his long practice, J. A. Steinberg participated in the same architectural competitions in which Le Corbusier and other Western masters participated. His objects were declared as the pure instance of the constructivism architecture. His articles were published in such magazines as "SA" (Modern architecture), "Nova Generatsiya" (New generation), "Budivelnik" (Builder) and others, in which articles of famous domestic and western architects were published. Nevertheless, Ukrainian science has far from fulfilled its duty to the master. Its architectural, scientific, pedagogical and journalistic heritage is still awaiting its collectors, systematizers and researchers, as well as bold programs for the restoration and reconstruction of its architectural objects.

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