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BETWEEN VISION AND POSSIBILITY – INDUSTRIAL ARCHITECTURE FROM THE SOCIALIST PERIOD IN SARAJEVO

ABSTRACT

As a contribution to the research on the specificities of Yugoslav modernism, the development of industrial architecture in the City of Sarajevo after World War II is presented. When defining the architectural typology of industrial buildings during this period of development, examples of conceptual designs whose implementation was either fully or partially absent were analyzed. The paper elaborates on the specific socio-economic and cultural context that determines the architectural production of the post-war period. Financial difficulties led to significant rationalization of construction that resulted in devoid of aesthetic expression. Nonetheless, conceptual designs from the archive of the People's Republic of Bosnia and Herzegovina's Ministry of Construction (*Ministarstvo građevina NR BiH*) show careful consideration of the technological process in conjunction with contemporary constructive possibilities and aesthetics of the functionalist design of modernism. The detailed presentation of the ambitious design of the Bosna Film "film city" in Jagomir provides a vivid insight into the undisputed development of architectural thought in this area.

Key words: *industrial architecture, socialist period, Bosna Film film studio, the City of Sarajevo, modernism*

1. INTRODUCTION

While international heritage conservation organizations work to determine how cultural heritage preservation can encourage climatic actions and promote the role of heritage as a driver and enabler of sustainable development [1], heritage protection services in Bosnia and Herzegovina still fail to recognize their industrial heritage, as well as the twentieth-century architectural heritage. These "newer" cultural heritage categories are mostly neglected. Their values are still not recognized as an intrinsic component of Bosnia and Herzegovina's cultural legacy by the public, national policies, and heritage conservation organizations. The aforementioned is clearly indicated on the current list of national monuments in Bosnia and Herzegovina.

The demand for extensive systematic research concerning industrial architecture stems from the fact that understanding the value of any heritage asset depends on broad scientific knowledge about its fundamental and special qualities. This paper highlights some of the findings of the author's research into developing an original methodological strategy for protecting Sarajevo's industrial architectural heritage [2]. It is known that industrial architecture paved the way for new architectural forms through its functional aesthetics, development of construction principles and the introduction of new materials, which laid the foundation for modernist expressions [3]. Although industrial architecture arises from the functional requirements of production technology, its development will be marked by architects' creative aspirations to produce harmony of function and form through the refinement of constructive systems. These are the main bearers of industrial heritage's architectural and artistic identity.

This study tries to demonstrate the evolution of modern ideas displayed in industrial architecture, which is frequently disregarded and attributed to a lack of aesthetic expression. The structure of this study is based on historical research and heritage documentation methodology. A summary of Sarajevo's urban and industrial development since 1945 is provided to illustrate the social, cultural, and economic context of the examined spatial scope. Moreover, the architectural scene is described, and an overview of design activities in industrial construction is given through the documentary fund of the People's Republic of Bosnia and Herzegovina's Ministry of Construction (in continuation: Ministry of Construction), which is stored in the Archives of Bosnia and Herzegovina [4]. Ultimately, the presented case study of the film city design in Jagomir shows that the design solutions of post-war industrial architecture resulted from studious consideration, harmonization of the technological program with constructive possibilities, and the aesthetic expression of modern functionalist architecture.

The author's research [2] recognized and defined the architectural identity of the industrial building typology. With the adopted methodological procedure, i.e. the analysis of 27 industrial entities created in the city of Sarajevo, it was possible to classify the architectural-formal, micro-urban and environmental-landscape features that define this architectural typology. In this regard, the evolution of industrial architecture is examined across all significant chronological periods. This is also applicable to postwar industrial architecture, which was studied through archival and field research. From the documentary fund of the Ministry of Construction, the following designs were selected: the extension and interpolation of new structures on the site of the old Slaughterhouse in Novo Sarajevo (1949); the Konzum Dairy Factory design, planned but never realized, along the Sušica stream in the Velešići area (1948); parts of the Central Dairy Factory design (chimney, boiler

house and administrative building design) in Pofalići (1949); additions to the facilities of the Tobacco Factory at Marijin Dvor (1949); the conceptual design for the ŠIK Knitwear Factory at Alipašin Most (bridge) (1950); the conceptual design of the Žica Wire and Nail Factory at Alipašin Most, in several variants (1949) and the Bosna Film design in Jagomir, also in several variants of the conceptual design (1949).

The designs of the Konzum Dairy Factory, the ŠIK Knitwear Factory and the Žica Wire and Nail Factory stand out in particular, along with the proposal for the film city in Jagomir, which will be presented in detail in the continuation of the work. The modernist functional approach to design is easily readable in the aforementioned designs. These conceptual solutions result from systematic consideration of the technological production process, harmonized with the constructive possibilities at the time and efforts to humanize work by applying a pavilion spatial system surrounded by greenery.

Modest financial resources and the lack of basic building materials lead to the rationalization of construction, reducing the design to the essential building stock within industrial units and complexes. The conducted research discovered that realizations of the most significant industrial architecture designs were completely absent, as was the case with the Konzum Dairy Factory and the ambitious film city design. Some were replaced by standardized ones, as was the case with the Central Dairy Factory. The latter cases were carried out with significant changes, turning the imagined open pavilion plans in a "green environment" into mixed block building systems with significant savings in space and building materials, as in the case of the ŠIK Knitwear Factory.

2. URBAN PLANNING AND DEVELOPMENT OF SARAJEVO AFTER 1945

The period following World War II was marked by frequent territorial reorganizations and dynamic urban activities in Sarajevo. The war-torn city, which had faced problems of insufficient housing construction, inadequate and outdated communal infrastructure and urban traffic, and the unresolved issue of the neglected and dilapidated historical core - *čaršija*, became further burdened with a large influx of refugees in the post-war period. In 1945, the city was characterized by muddy, unpaved streets with horse-drawn carriages and housing poverty [5].

Few architects, builders, and technicians gathered around the newly-formed Ministry of Construction, within which a department for design and urban planning was organized under the leadership of the architect Jahijel Finci, attempted to solve the basic architectural and urban problems in the Republic at that time. Due to insufficient staff, the Czechoslovakia government was contacted in an effort to obtain expert assistance in the development of urban plans [6].

Preparations for the General Regulation Plan of Sarajevo began in 1947 with the arrival of expected technical assistance by architects from Czechoslovakia. The tasks for the Plan were specified, some of which were: "...to rehabilitate the old part of the city, preserving all its cultural and aesthetic values, and adding to this a New City that will meet all the needs of modern society, and at the same time be a logical continuation of the old part of the city"; "...to properly limit spaces for three basic needs of residents, namely for housing, work, and recreation". It was also noted that "...the possibilities for further development and expansion of the city exist in the western direction, and partially in the Koševski Potok valley, towards the north" [6: 390].

In December 1948, the proposal for the long-awaited General Regulation Plan of Sarajevo was completed. This plan was never adopted, but it was not rejected either. Certain documentary additions and comprehensive analyses were necessary. Until then, what was not controversial in the plan could be implemented. Furthermore, Đumurkčić presents the basic principles of the Plan in his article, thus expressing its significance from the perspective of the city's urban development history.

The spatial scope of the Plan was limited to the area up to Dolac Malta in the west, while the area of the "Sarajevo region" did not extend beyond the settlements of Ilidža, Blažuj, Hrasnica, and Vogošća. The industry was located in the Sarajevsko Polje (field) without a closer spatial organization and structure [6]. Today, this Plan is considered a conceptual design for spatial activities at the time [7]. The focal points - squares in front of the Republic administration buildings and the railway station, connected by boulevards and the upcoming urban planning activities, will represent the backbone of the new city center.

The 1950s were marked by partial urban solutions for parts of the city that were not expected to change their purpose significantly after the Plan's adoption. During this period, an industrial zone with a rail freight station and a wholesale market was formed in the settlement of Pofalići, and a significant part of the city's industrial zone was formed at the Alipašin Most - Stup route alongside the existing Sarajevo-Ilidža road [6][8].

One of the main shortcomings of the Plan was insufficient analysis of real economic, social, cultural, and other influential factors. As Đumurkčić points out, Sarajevo should have been seen not only as an administrative and cultural center but also as an industrial center, with particular attention given to the problems accompanying the city's economic development. For this purpose, a methodology for developing the program followed by the Plan was elaborated, which was continuously improved without losing its scientific and professional approach. Fifteen different commissions participated in the preparation of the economic documentation alone. According to Đumurkčić, 143 experts worked on the preparation of the entire documentation, expert analyses, and the final Program for the creation of the Plan (completed in 1960), which comprised 3,272 text pages [6].

Finally, the first General Urban Plan of Sarajevo (1965-1986) was adopted by the City Council with the Decision of May 28, 1965 [9] (Figure 1). The General Urban Plan (GUP) defined the territory for the city's development. It was determined that the city should expand adjacent to the existing city towards the west while utilizing the Miljacka River valley and the surrounding hills for residential construction. Sarajevsko Polje was designated for the placement of the main area for work, while Trebević and Ilidža were designated for recreational purposes. Two additional residential zones were added to the urban fabric to mitigate the negative aspects of this elongated shape. These areas were formed within natural amphitheatres, one at Slatina (Betanija) to the north and the other at Miljevića (Lukavica) to the south. This plan resulted in the city covering an area of 130 km² along with its extensions [9].

The entire urban territory was divided into two parts: Marijin Dvor and the Old Town, located in the eastern part, and the New Town, located in the western part. Furthermore, the city was divided into four regions, within which there were a total of 46 residential units. The central functions along the main axis of the city's development line were distributed in three urban centers (Bašaršija, Marijin Dvor, and Otoka) and two regional centers (Čengić Vila and Mojnilo). Residential areas were developed along the left bank of the Miljacka River, while business zones were situated on the right bank, adjacent to the railway [7].

In continuation, a brief overview of the city's industrialization will be given in order to provide a contextual framework for architectural activity while forming the industrial building typology of the considered time period.

3. RENOVATION AND FORCED INDUSTRIALIZATION OF THE CITY - THE FIRST SOCIALIST PERIOD OF DEVELOPMENT

During the interwar period (1918-1945), Sarajevo lost its central role in the wider region, leading to economic stagnation in the city. Poor transportation connectivity, underdeveloped rail and road networks, low purchasing power of the population, and neglect in economic policy contributed to weak industrial development in Bosnia and Herzegovina as a whole and, thus, Sarajevo as well [10]. Sarajevo's economic development, which relied on the administrative and military apparatus of the Austro-Hungarian period, without a developed industry capable of absorbing a significant workforce, did not offer economic prosperity to the city in the new, significantly altered political conditions.

War destruction and lack of raw materials affected the complete cessation or significant reduction of pre-war industrial production in Sarajevo. At the end of World War II, industrial facilities were destroyed, and the most significant companies in the city, such as the Tobacco Factory, the Main Railway Workshops, the Ključ Factory, the joint stock brewery's malt factory in Kovačići, and the City Gasworks, were ruined [11]. According to industrial geographers [12], a period of reconstruction and forced industrialization began immediately after the war (1945-1952), which is considered one of the most challenging periods in the economic development of the former state. This certainly had an impact on the industrial development of Bosnia and Herzegovina. The entire country's planned directions of development, as well as the development of the Republic of Bosnia and Herzegovina, significantly affected the city's economy. Sarajevo became the political and administrative center of the Republic once again, which significantly defined and conditioned its further economic development. The construction of transportation connections within the Republic, especially the "youth" railway line Šamac–Sarajevo, which had a broader Yugoslav significance, significantly impacted the city's economic development. Military industry relocation from the country's lowland regions to the Sarajevo area, which followed the Informbiro Resolution, profoundly impacted the future path of its development (such as the Zrak, Famos and Pretis factories). In accordance with the five-year plan, which primarily placed the future of economic development on the construction of basic industries (energy, mining, black metallurgy, and machinery), the first new hydroelectric power plant in Bosnia and Herzegovina (in the settlement of Bogatići, on the Željeznica River) was built in Sarajevo, and its entire metal processing industry was reorganized [11].

During this first period, industrial plants were nationalized, and their reorganization (merging and reorientation of production) and the creation of entirely new industrial enterprises took place. Industrial enterprises established in the Austro-Hungarian period represented a realistic basis for the city's future development and the reconstruction of the war-destroyed economy.

The historical industrial spatial units of Sarajevo emerged during the first capitalist development period and were further expanded by accelerated industrialization after World War II, forming recognizable industrial landscapes. These units include the valleys of

Koševski potok, Sušica, and Kovačići, the area of Skenderija (Terezija Street) and Marijin Dvor (the tobacco factory and electric power plant), Pofalići (Central Railway Workshops), the Paromlin and City Gasworks zone, and finally, the Alipašin Most industrial zone. Through the conducted research [2], three significant historical industrial zones were defined within the observed spatial coverage:

1. the northern industrial zone of the city consisting of three spatial units: the valley of the Sušica stream, the valley of the Koševski Potok, and the area along Miljacka riverbanks from Skenderija to Vrbanja Bridge;
2. Novo Sarajevo industrial zone composed of two spatial units: Pofalići and Paromlin;
3. Alipašin Most industrial zone, which stretches along the former Sarajevo–Ilidža road from Otoka to Stup.

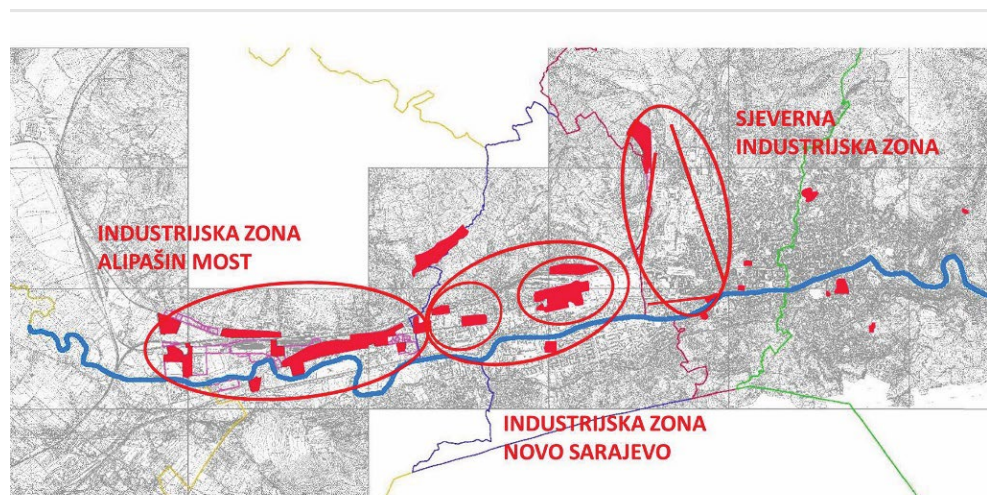


Figure 2. Industry distribution map (drawing by the author, 2021)

When considering the urban industry layout in the western part of the city, Muhamed Kadić observes that "[m]any industries were placed alongside the existing railway and road traffic routes, in order to save on investment costs for material and labor transport. In this way, a strip of tightly packed buildings emerged between the railway and the road... These tightly packed factories blocked each other's further development and expansion while also blocking the development of the city in that strip, both in spatial and aesthetic terms" [13:13].

Companies primarily founded during the first industrial period, whose location conditions were tied to the proximity of the workforce (such as the textile and graphic industries, as well as the Sarajevo Brewery), remained within the central urban core.

3.1. ARCHITECTURAL TYPOLOGY OF INDUSTRIAL HERITAGE AFTER 1945

As previously mentioned, after World War II, Bosnia and Herzegovina was a significantly destroyed and impoverished country with only a modest number of builders available for its reconstruction. This included a small number of local architects, from whom only a few had notable works from the pre-war period, as well as technicians and students from technical schools.

According to the notes about the fund of the Ministry of Construction, the Ministry was established on April 27 1945, by the Law of the People's Assembly of the People's Republic of Bosnia and Herzegovina, at the third session of ZAVNOBiH in Sarajevo, and was abolished as early as April 14 1951. At the time of liberation, the construction works department at ZAVNOBiH had only six engineers, three technicians, and one typist.

Although young architects returned to Sarajevo with degrees from universities in Zagreb and Belgrade in the post-war years, the real strengthening of the architectural practice resulted through a planned distribution of professionals from more developed state centers into Bosnia and Herzegovina. Early tasks mainly addressed the issue of rebuilding the most essential buildings, such as standardized facilities for cooperative houses, rural cultural centers, rural schools, infirmaries, agricultural facilities, sawmills and brickworks. New settlements were also built near new or existing factories and mines based on simple spatial sketches. Limited financial resources and operating capacity, along with improvised and outdated equipment and a permanent shortage of building materials, did not allow for detailed research, studies, and creative approaches in the development of urban and design solutions. Only the necessary low-standard housing was constructed, with simplified floor plans, whose implementation was often pressured by tight deadlines and haste [14].

According to Štraus, the understanding of architecture at that time was imposed by the new social order based on socialist foundations in Bosnia and Herzegovina, and it carries all the contradictions of this short period. Strong links between leading architects and the building values of the interwar period, along with the obligations imposed by socialist realism principles, led to a wide range of achievements "from ambitious competitions for buildings of exaggerated content and artistic pretensions in the centers of the state to the implementation of cheap housing of poor quality devoid of elementary design features" [14:15].

According to the established periodization given by Kreševljaković [18] in his thesis, the post-war period is associated with a significant influence of the USSR through social and economic processes. In architecture and art, this influence was evident in the emergence of socialist realism. Noticeable influence of this style is observed in the design of the new railway station in Sarajevo (1947/53), built according to the architectural concept of architects from Czechia and Eastern Germany, which was subsequently supplemented and functionally completed by the architects B. Stojkov, J. Finci, E. Šamanek, and the engineer Eichberger. Another example following the same principles is the building of the Institute for Hygiene (1952) by Vaso Todorović. During this period, several significant architectural achievements were built that represented a continuity with the established principles of the international style initiated in the interwar period, such as the housing complex on Džidžikovac by the Kadić brothers and the ski lodge on Trebević by the architect Juraj Neidhardt, thus confirming the aforementioned statement by Ivan Štraus.

This period of development (defined between 1945 and 1975) was marked by rapid industrialization of the city, with the construction of new facilities in all previously established industrial areas and significant expansion of existing ones. Production facilities were designed based on the principles of functionalist design that followed the production technology process, with basic stylistic features of modern mass production after World War II. The building structures of production facilities were constructed using a combination of brick walls, framed structures and monolithic, as well as prefabricated, reinforced concrete constructions. Standardized halls in the metal, construction, pharmaceutical, and

even food (dairy) industries were constructed using prefabricated steel structures. New industrial complexes established during this period were located next to the industrial railway track (all except for the Zrak, Bosna Film, and Bosnalijek factories). The composition of these complexes was mostly formed in a mixed pavilion-block spatial system, often conditioned by the location and limited surface area of the land plot. The spatial block comprised administrative and main production facilities (usually connected by a single entrance, with workers' changing rooms providing access to production areas, as in the case of the dairy, tobacco, VMC, and Zrak factories). In addition to previously established production, energy, storage, workshop, and administrative functional units, the morphology of the complex also includes workers' social standard facilities, laboratories, and garage facilities. Workers' housing units remained within certain industrial complexes (the beer and dairy factories), as well as their immediate vicinity (the Tobacco Factory in Pofalići and the Zrak Factory). The semantic features that characterize this period of development are high factory chimneys and functionalist design, whose forms, such as shed roofs (Zrak and Žica factories), façade structures that display the structural elements of the building, and the arrangement and size of openings, clearly indicate the utilitarian nature of these spatial units [2].

The founding of the Faculty of Architecture in Sarajevo in 1949 and the involvement of Professor Muhamed Kadić in the course "Designing industrial and agricultural buildings" certainly contributed to the development of architectural thought when considering this architectural typology. This is supported by the fact that Professor Kadić and his assistant at the time, architect Živorad Janković, both of whom went on to become academics, received the Sixth of April Award for the realization of the Tobacco Factory industrial complex in 1963 [16]. In the following sections of the paper, the studied archival material related to the planned construction of a film complex on the city's western edge will be shown in detail. This design, envisaged by an ambitious capital construction plan for the purpose of affirming film art in the newly established state, is also signed by one of the academic architects of BiH, a pioneer of modern thought in these areas. By studiously considering the program and the technological process, the designer provides solutions in which the harmony of function and form with the constructive possibilities of the materials used at the time was achieved.

The prominent cultural worker Vefik Hadžismajlović described this complex at the end of the last century: "But! The development of Bosnian-Herzegovinian cinema confirms that life and real possibilities are stronger than dreams and fantasies. Conceived as a strong cinematographic center, located in Jagomir near Sarajevo, with a large studio and many accompanying facilities, as a 'film city', 'city of dreams', and a local version of Hollywood, Mos-film, and Barandov - today, only a modest technical base of 'Bosna Film' remains, with studios in which films are not made, with facilities that, through their abandonment and emptiness, seem like a sad moment of a distant era of a Don Quixote-like heroism and vision." [17: 544]

4. THE FILM CITY IN JAGOMIR - THE DESIGN OF "BOSNA FILM" (1949)

From the documentation fund which accompanies the conceptual design for the construction of the Bosna Film, small studio complex in Jagomir, it is discovered that the establishment of the film complex was planned as part of the capital construction plan for the year 1949. Experienced engineers specialized in industrial buildings, the architect Radanović and the engineer Bajraktarević from Belgrade were hired to design it. Initially,

the engineers produced a conceptual design without a previously developed program based on their experience in constructing facilities for the film industry, as stated in the attached technical description. However, the processed material also includes a "Construction Program for the Production of 6 to 8 Artistic and 10 Documentary Films per Year", probably created after the aforementioned conceptual design. The conceptual design of the complex created in accordance with the provided construction program can be seen based on the site plan (Figure 3).

The film city was located in the valley of the Koševski Potok within the undeveloped green oasis of the city. Inside the complex, accommodation was provided for film studios (three studios in order to allow for uninterrupted work on two films at the same time) with accompanying dressing rooms for actors and technical staff, a film laboratory, an editing facility, a dubbing facility, and an administrative building with accompanying workshops and warehouse spaces. Its own energy production and central garage facilities for passenger cars and trucks were planned. The morphology of the complex was conceived in the spatial composition of a mixed pavilion-block construction system.



Figure 3. A variant of the "Bosnia Film" site plan from 1949. The site of the complex in Jagomir is located on the right side of the Koševski Potok along the existing road to Nahorevo (today Nahorevska Street). The entrance to the complex is planned from the south of the plot. The facilities inside this film city are: 1 - porter's office with a guard, 2 - administration, 3 - laboratory, 4 - synchronization, 5 - wardrobe, 6 - small studio, 7 - auxiliary studio, 8 - large studio, 9 - workshops, 10 - warehouses... 14 - painting room, 15 - garages (by courtesy of Archives of Bosnia and Herzegovina).

Given that the revision commission for planning decided to save up to 50% of investments, the architects from Belgrade offered a compromise solution. They proposed a small atelier as a temporary solution for the main production. According to a letter intended for the Cinematography Commission, the planned building would be repurposed into a decoration warehouse upon completion of the construction. The architects proposed to place the

supporting facilities such as wardrobes, offices, buffets, kitchens, fireplaces, and warehouses around the central hall, and the conceptual design for a hall measuring 15 x 40 m, 7.0 m high and accompanying spaces that would be located in the side wings be approved in the first phase of construction.

Certain objections were made to the proposed design, and in August 1949, the middle nave, i.e. the main hall measuring 40 x 15 m, began to be built in accordance with the proposal but was limited to the basic form. From the technical description signed by engineer Svetislav Hrisafović on behalf of the Sarajevo City Design Company, who was entrusted with a new concept design of auxiliary spaces arranged around the main hall, the original state of the dilapidated structures found on the site today can be read. It is evident that the comments of the revision commission were adopted, and sufficient space for the start of production was created with the new design.

The technical description reveals that the revision committee changed the position of this production facility in relation to the design of the engineer from Belgrade. In addition to the production hall, wardrobes and auxiliary rooms were added in the western wing, while warehouse space comprising two floors was added in the eastern wing. A central annex with finished mezzanines was designed from the rear of the hall. As stated in the technical description, the first-floor spaces of the west wing were not fully defined. Therefore, typical individual openings were installed, between which partition walls can subsequently be added. The construction and materialization of the facility respond to the set requirements for investment savings. A photograph of the film complex's model shows significant deviations from the originally conceived conceptual site solution that accompanied the presented program (Figure 4).

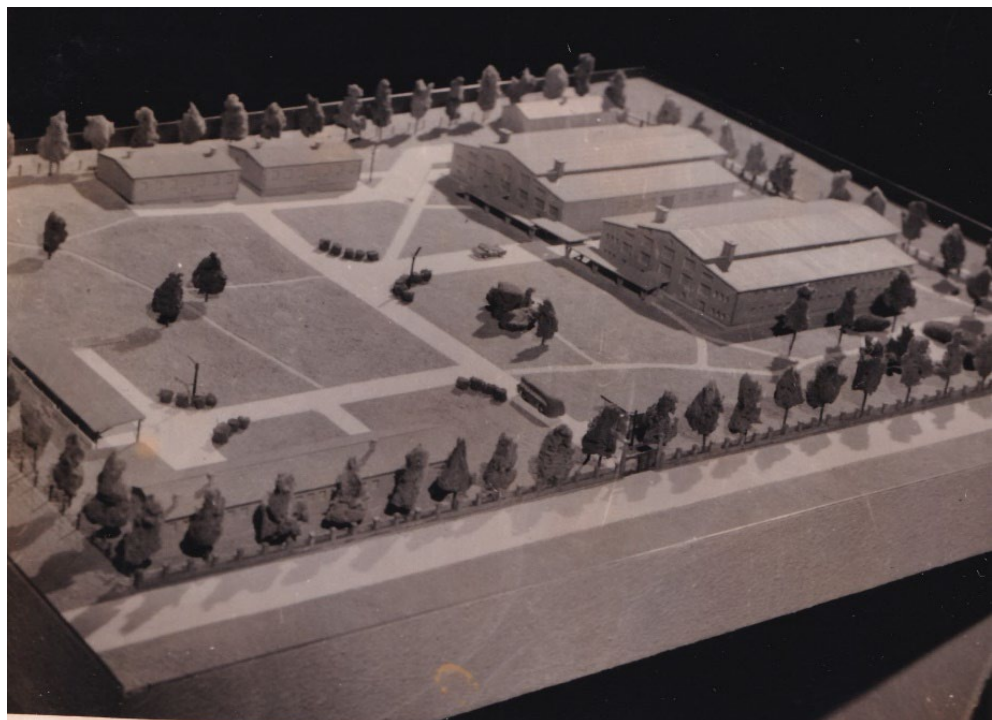
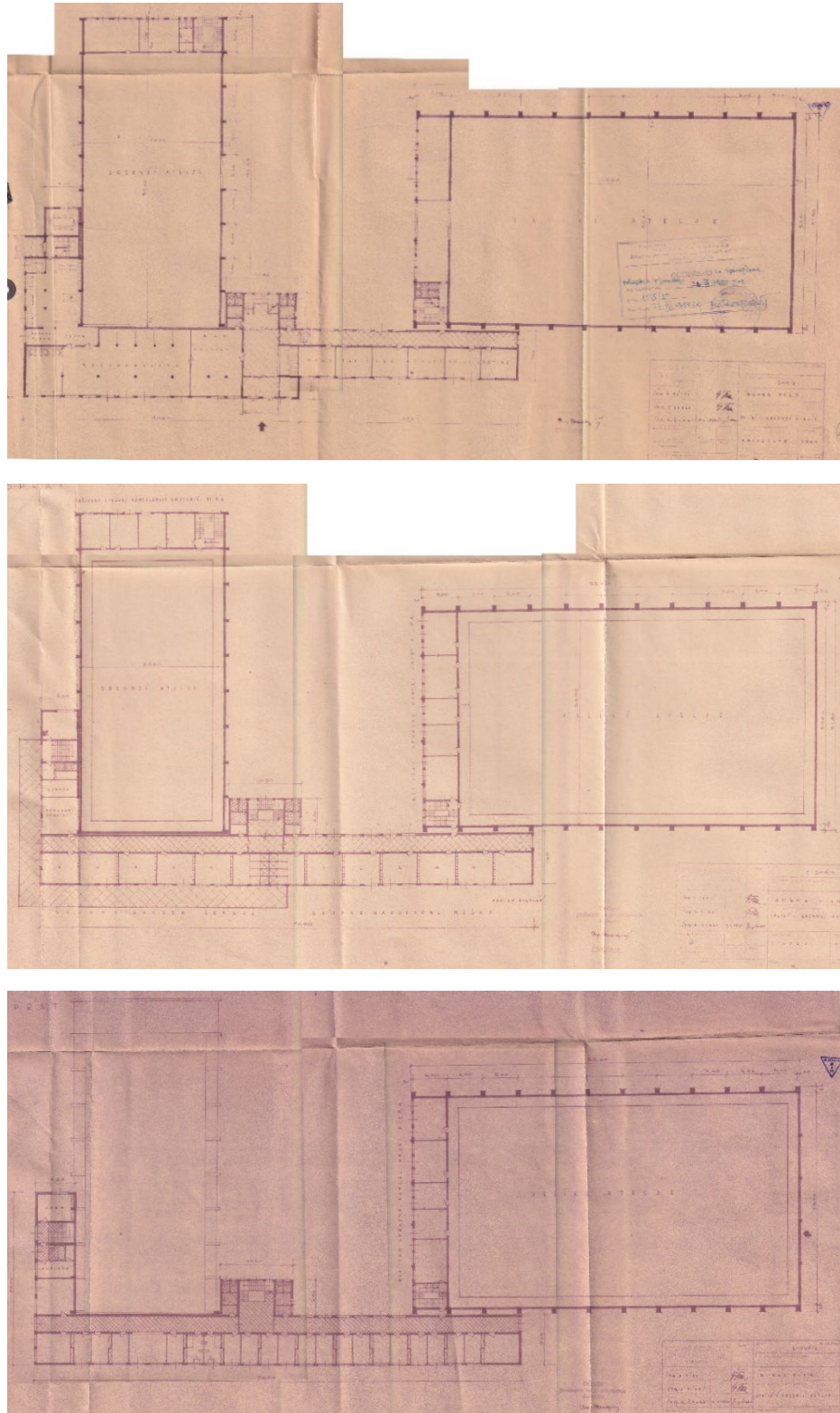


Figure 4. Photo of the model. The small studio conceived as a "temporary space" from the first phase of the development of the complex will remain the only production hall in the next 40 years of use (by courtesy of Archives of Bosnia and Herzegovina).

A conceptual design of an ambitious scale was discovered in the second box of the archival fund belonging to the Ministry of Construction. The design in question consisted of a large and medium-sized studio connected in a single block via a section for wardrobe storage and other accompanying spaces (Figures 5 and 6), as well as a conceptual design for a laboratory and assembly building (Figure 7), created by the City Design Company and signed by Jahiel Finci in April and May of 1950. Although these designs were never realized, an insight into the technology of the film industry in the mid-20th century is provided, as well as the undeniable development of architectural thought in Bosnia and Herzegovina and the surrounding region. The monumentality of the primary production structures, the film studios, emerged from the designer's creative drive to demonstrate the viability of modernist design's harmony of function and form in industrial architecture via the proposed constructive system.

The large and medium-sized studio with wardrobes was conceived as a single industrial block. The production halls (studios) are connected via a common section (thermal connections) of the building for placing wardrobes and other accompanying spaces. In the central part of this building, consisting of three floors, there is a representative entrance through a wide staircase to the lobby area with the main staircase and restrooms. Furthermore, on one side of the ground floor, there is a restaurant, kitchen, storage rooms, and a living area for employees, and on the other, there is a makeup room, costume warehouses, and a tailoring room. The wardrobe building was planned to be built as a solid brick structure with concrete foundations and reinforced concrete slabs. The roof structure would be built as a classic wooden one, covered with corrugated asbestos-cement roof tiles. The flooring would be covered in parquet.



Figures 5. Jahl Finci's 1950 conceptual design for the construction of a big and medium-sized atelier with dressing rooms consists of three drawings: 1- the ground-floor plan, 2-the first-floor plan, and 3- the second-floor plan (by courtesy of Archives of Bosnia and Herzegovina).

The large and medium-sized studios differ only in their dimensions. The large studio measures 30.0 m x 50.0 m with a height of 18.34 m, while the medium-sized studio measures 20.0 m x 29.80 m and has a total height of 13.80 m. Adjacent to the production halls are storage areas for light reflectors and other technical equipment, as well as staircases leading to the "directing and administrative offices" situated on the upper floors. Within the studio space, work galleries are formed as cantilevered balconies (two in the large studio, 90 and 100 cm wide, and one in the medium-sized studio) for the assembly of technical equipment required during film production. The structure of the building is conceived as a reinforced concrete framed structure with concrete walls and roofs in the form of reinforced concrete vaults (single-span arched reinforced concrete halls in combination with a reinforced concrete framed structure). In order to achieve acoustic performance, a ventilated facade with a 4.0 cm air gap between the wall and the facade cladding made of heraklith was planned.

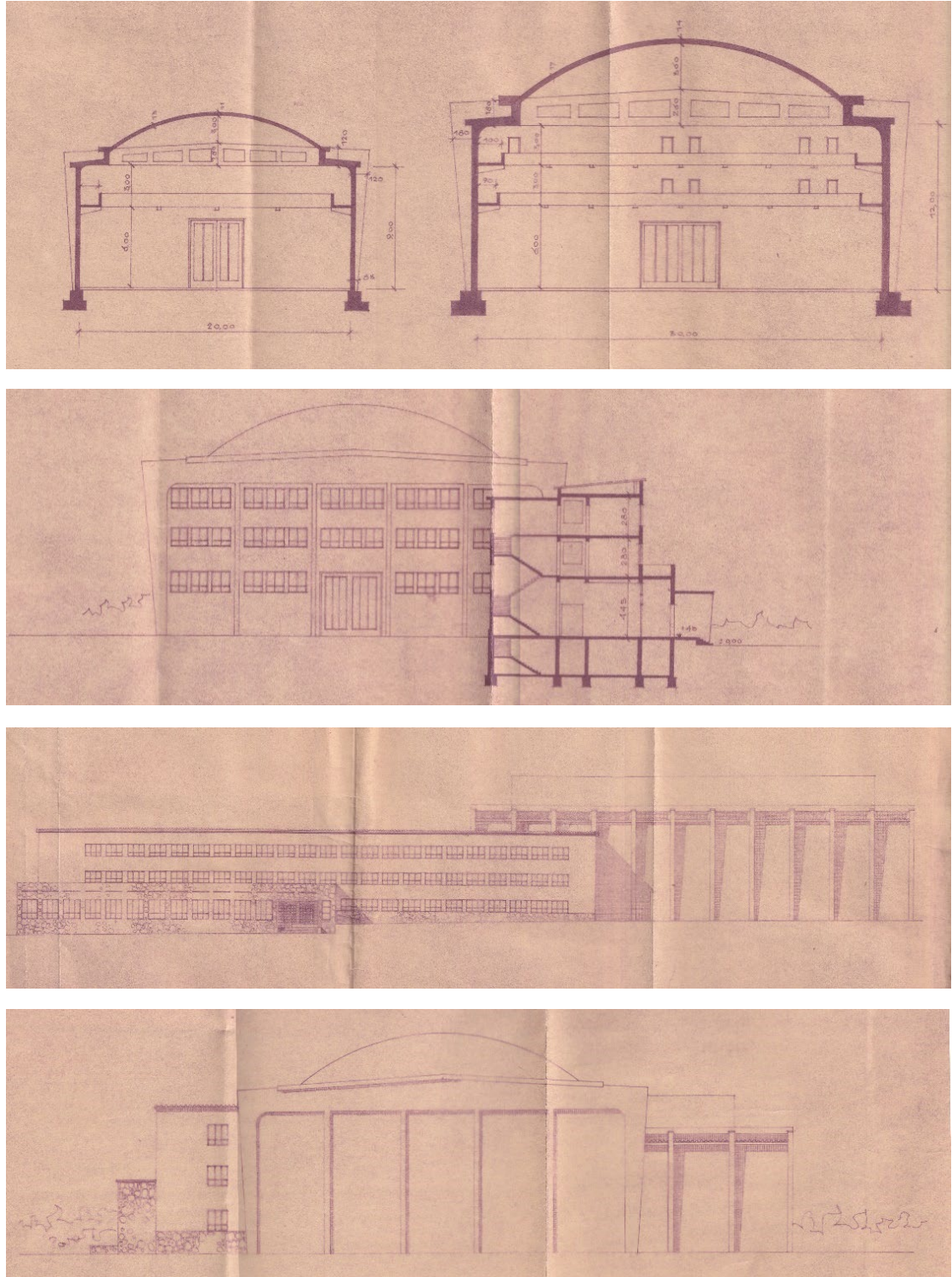


Figure 6. Designs of the characteristic sections and facades of the "large and medium studio with dressing rooms" building are presented, revealing the structural features and modernist design typical of post-war mass construction (by courtesy of Archives of Bosnia and Herzegovina).

The following conceptual design found in archival documents relates to the laboratory and assembly building. The building has a U-shaped floor plan with symmetrical rear wings inside which two separate technological processes were developed, assembly on the right and laboratory on the left side of the building (as viewed from the frontal facade). Separate entrances to these two technological units are also formed on the side of the building (emphasized entrances with accompanying porter and wardrobe spaces were created). The building is designed as a one-story building with a basement and an attic. Auxiliary rooms for the boiler room, air conditioning, and storage tanks for chemicals needed in production are located in the basement. According to the space usage legend, on the ground floor, the following areas were situated: offices (1, 2, 3), space for film storage (4), chemical storage (5), dispatch (8), "pickling" or negative film resting (9), laboratory for developing negatives (10), chemical melting (11), laboratory for developing positives (12), sound laboratory (13), assembly of negatives (14), auxiliary warehouse (15, 16), and smoking area (17). While the rooms on the upper floor were intended for projection halls (one in each side wing) (1), projection cabins (2), anterooms for halls (3), there are also: trick-laboratory (4), experimental laboratory (5), pickling (6), light reader (7), copier (8), assembly of positives (9), chamber (10), and technical control (11).

Based on the attached drawings, it can be concluded that it is a construction of massive brick walls with a reinforced concrete slab and a classic wooden roof structure. When contrasted to the preceding design, it is clear that the design approach is the same, albeit in a much more modest shape, and belongs to the modernist design characteristic of mass post-war construction.

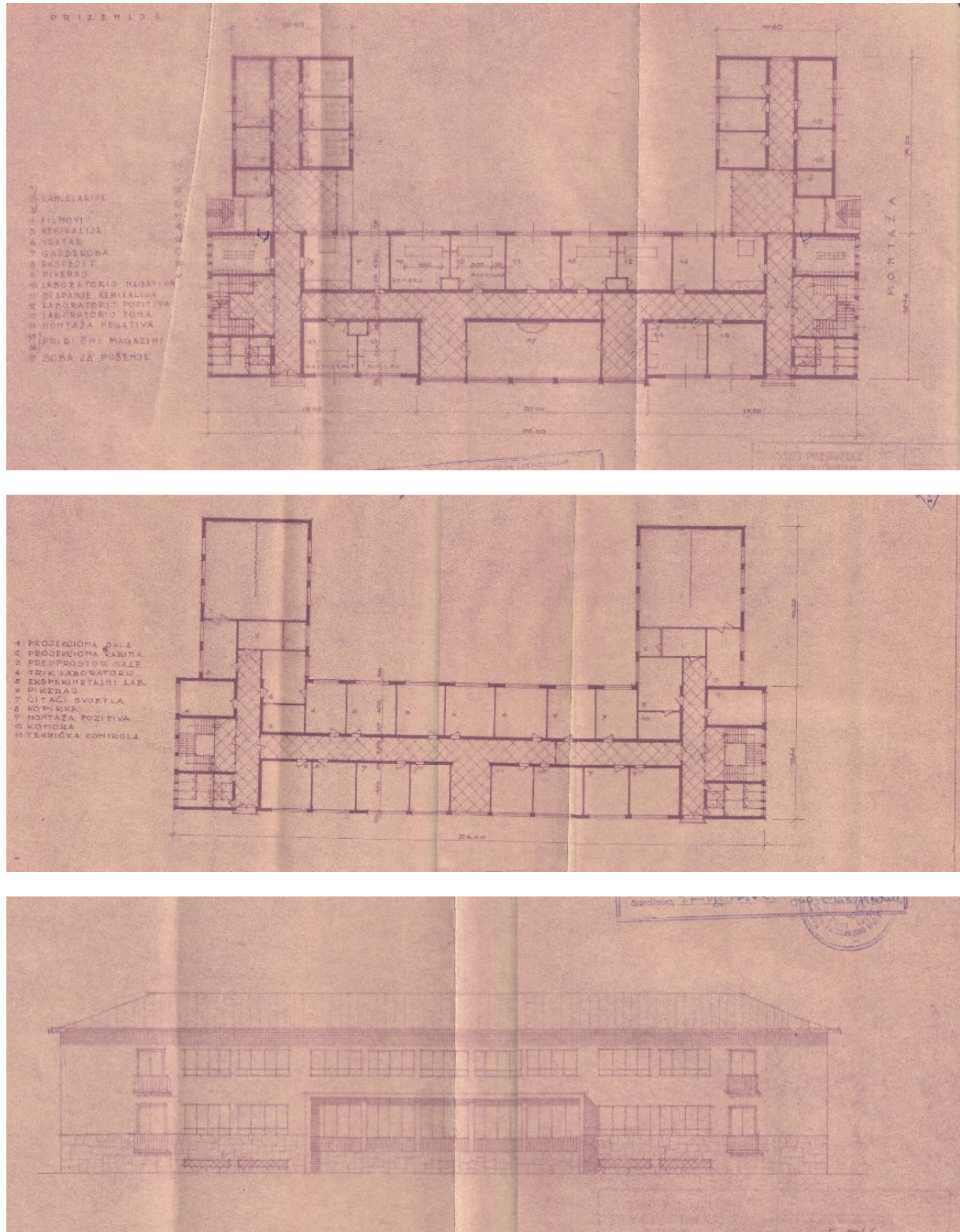


Figure 7. Design for the Bosna Film laboratory and assembly building by Jahiel Finci (1950) (by courtesy of Archives of Bosnia and Herzegovina).

4.1. DISCUSSION

The conceptual design given by architect Jahiel Finci, which was never realized owing to rationalization and a lack of financial resources, provides insight into the creative process of young architects in Bosnia and Herzegovina at the time. The reconsideration of industrial architecture as a vital component of modernity has been demonstrated in the design of the key production facilities, film studios. The design emphasizes the structural assembly of a single-space arched reinforced concrete hall, with large smooth wall surfaces divided by an accentuated colonnade of reinforced concrete skeletal structure pillars, which, by their monumentality, indicate the role of the film industry in the newly established social system. A studious approach to the program, as a rethinking of the technological process, is also visible in the design of accompanying content. The gradation of masses, halls, studios and the entrance building, accentuated entrances, rhythmic openings, and the rustic finish of the ground floor facades, which stand in contrast with plastered smooth surfaces, all hint at the aesthetics of modern stylistic features.

Today, only the ruins of this film company can be found on the site of Jagomir. From the presented design documentation, the only building (intended as a temporary studio) from 1949 was built according to the design by the engineers from Belgrade and finalized according to the conceptual design made by S. Hrisafović in 1949. Conceived as a film town, a local version of Hollywood, it ended up with a modest technical base. It is known from historical sources that the Bosna Film company, i.e. Studio-film, had available 4.0 ha of land in the presented locality, so their legal successor, Sutjeska-film, and today the Sarajevo Film Center, occupied only 2.0 ha, or one half of the designated area. A comparative analysis of historical maps, site plans and current geodetic foundations shows that the former complex of the film industry extends only to the northern part of the plot shown in the preliminary design. The position of the "small studio" is clearly legible on all geodetic plans and corresponds to the site position presented in the conceptual design.

5. CONCLUSION

Although we often witness the industrial architecture of the early socialist period reduced to simplistic forms devoid of aesthetic expression, the previous presentation highlighted the design activity that thoughtfully considers the harmony between technological process and material and structural design possibilities that lead to the aesthetics of functionalist modern design.

The presented designs and defined architectural typology are the results of research conducted within the spatial scope of the city of Sarajevo, which is limited to only four municipalities. The unexplored material stored in the Ministry of Construction archive demands further research into this construction category. The archived designs of industrial buildings, workers' housing, social facilities, such as workers' clubs, industrial schools, and workers' health care facilities, located in the cities of Zenica, Lukavac, Jajce, Vareš, Banovići, Brčko, the Hrasnica and Blažuj areas, as well as the Jelšingrad foundry design, surely conceal the unexplored industrial heritage of Bosnia and Herzegovina.

Ultimately, this presentation aims to raise awareness of the significance and importance of 20th-century industrial heritage as expanded scientific knowledge forms the foundations for the objective valorization of this cultural category.

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Maja Pličanić was born in 1978 in Sarajevo. She obtained a doctoral degree in architecture from the Faculty of Architecture, University of Sarajevo, in 2021. As a researcher in the field of cultural heritage with a focus on industrial heritage, she mainly presents and publishes her work at international conferences and meetings. In March 2014, she was assigned the position of a Teaching Assistant, and in September 2021, the position of an Assistant Professor at the Faculty of Educational Sciences, University of Sarajevo, for the scientific field of Cultural Heritage of Bosnia and Herzegovina. She has been a permanent member of the ICOMOS National Committee in Bosnia and Herzegovina since 2010 and the TICCIH since 2022.

ИЗМЕЂУ ВИЗИЈЕ И МОГУЋНОСТИ – ИНДУСТРИЈСКА АРХИТЕКТУРА СОЦИЈАЛИСТИЧКОГ ПЕРИОДА У САРАЈЕВУ

Сажетак: У прилог истраживању специфичности југословенског модернизма, показује се развој индустријске градње на подручју града Сарајева после Другог свјетског рата. Приликом дефинисања архитектонске типологије индустријских објеката овог периода, анализирани су примјери концептуалног дизајна чија је реализација била дјелимична или је потпуно изостала. Рад је представио специфичан друштвено-економски и културни контекст који је одредио архитектонску продукцију у послератном периоду. Иако су финансијска ограничења водила до велике рационализације која је углавном резултирала индустријским објектима лишеним естетског израза, концептуални пројекти пронађени у фонду Министарства грађевине Народне Републике Босне и Херцеговине показују студиозне рефлексије о технолошком процесу који је усклађен са конструктивним тежњама и естетиком функционалног модернизма. Детаљан и амбициозни пројекат „Филмског града“ у Јагомиру веома живописно пружа увид у неупитан развој архитектонске мисли у овој области.

Кључне ријечи: индустријска архитектура, социјализам, филмски студио "Босна филм", Сарајево, модернизам.