



Elementary school in Kobilja Glava settlement in Sarajevo by architect Ahmet Hadrovic

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Abstract

The first elementary school building in Kobilja Glava settlement in Vogosca Municipality, Sarajevo, was built in 1939. It was a four-grade school, one of the first built on the territory of today's Vogosca Municipality. This building, with occasional repairs and maintenance, stood until the 1992-1995 war. During the war, the school building was shelled several times, and finally destroyed, by the Army of Republika Srpska. The same thing happened with the newly built mosque, grocery store and many individual residential buildings. The urge to end the war (December 14, 1995) gave rise to a period of intensive reconstruction and new construction in the Kobilja Glava settlement. The author of this paper prepared an urban project for the center of the Kobilja Glava settlement, which provided for a number of business, cultural, religious and memorial contents. Also, the Author completed the projects of all the individual buildings, only one of which (the hotel) was not realized due to the death of the client of the hotel. Some of these projects were presented to the public by the author through works published in international journals. In this paper, the elementary school building will be presented through its history, and the emphasis is on the two last additions to the school building for which the Author of this paper made projects.

Keywords: Elementary school, Settlement Kobilja Glava, Vogosca municipality, Sarajevo

1. Introduction

Since their inception, schools have been extremely important architectural programs of a society. With their location, external and internal decoration, equipment and their openness to the social community, the schools were supposed to show the best that a society inherits and practices, and show and practice its openness to new possibilities, both for the individual and for society as a whole. With this effort, the Author started designing the architectural object that will be presented here.

The elementary school building is located in Kobilja Glava settlement, Vogosca Municipality (Geographic coordinates: 43°53'03.03"N, 18°23'07.57"E, Elevation: 640 m). The Kobilja Glava settlement is located at the very northern entrance to Sarajevo, around the main road Sarajevo-Vogosca-Tuzla, and is older than the city of Sarajevo itself (Figures 1, 2). Since it has an extraordinary position between Sarajevo and Vogosca, the settlement experienced a rapid expansion after the 1992-1995 war. The construction of Adil Bey's mosque, post office, infirmary, pharmacy, department store and a number of business buildings^[1] is an indicator of the attractiveness of this settlement. The sudden increase in the population^[1, 2, 3, 4] was first shown through the number of children of preschool and school age, which made the construction of an eight-grade elementary school an urgent need (Table 1). In fact, it was an extension of the existing four-grade school (Figure 3).

2. The condition before the new school building construction

The first addition to the elementary school building in the Kobilja Glava settlement took place in 1997, when four new classrooms, school administration offices and service rooms were added to the new addition (Figures 4, 5, 6). In the first years of reconstruction (even in the Kobilja Glava settlement), individuals had the initiative where they 'found' donors.

¹ The projects of all these buildings were done by the author of this paper

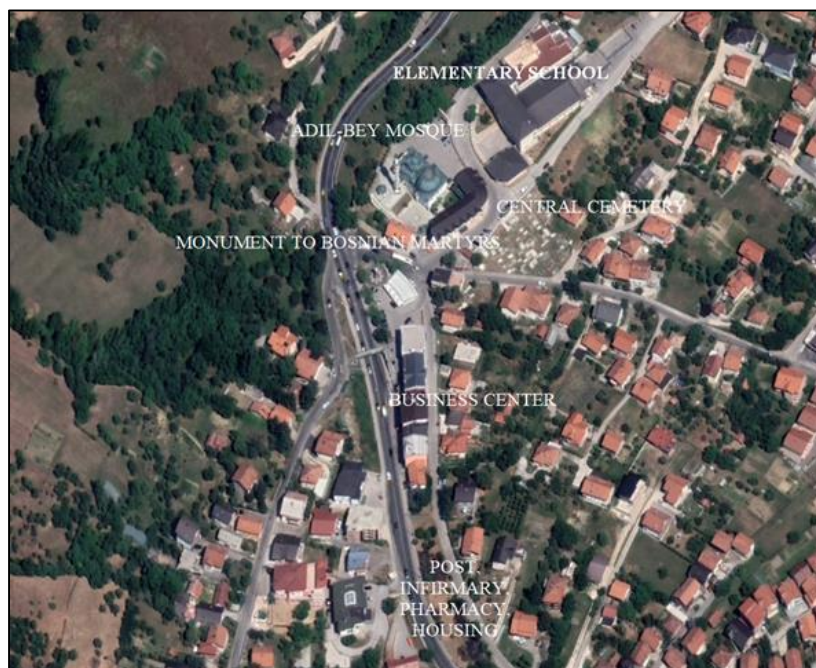
Most often, there was a 'long chain of intermediaries' in the realization of a donation, with non-transparent spending of funds. The author of an architectural project was most often unable to follow the realization of his project, and was most often 'not welcome on the construction site'. By 'strengthening the state', the reconstruction becomes more and more 'orderly', with all administrative and legal procedures. The project of the first extension of the school (as well as the urban project of the Kobilja Glava Settlement Center) The author worked 'pro bono' as his contribution to the reconstruction of the settlement where he has his family

house [5, 6, 7, 8]. With the reintegration of the Vogosca Municipality into the Federation of Bosnia and Herzegovina, the work of all schools in Vogosca is being revived (during the 1992-1995 war, only the school in the Kobilja Glava settlement was working, at several points, in individual residential buildings). By decision of the transitional municipal council on January 1, 1997, the eight-year primary school "Zajko Delić" in Vogosca was established in the Kobilja Glava settlement. School year 2004/2005. In this school, nine-year-old elementary school students began their education for the first time.

Table 1: Growth of the elementary school in the Kobilja Glava settlement over time

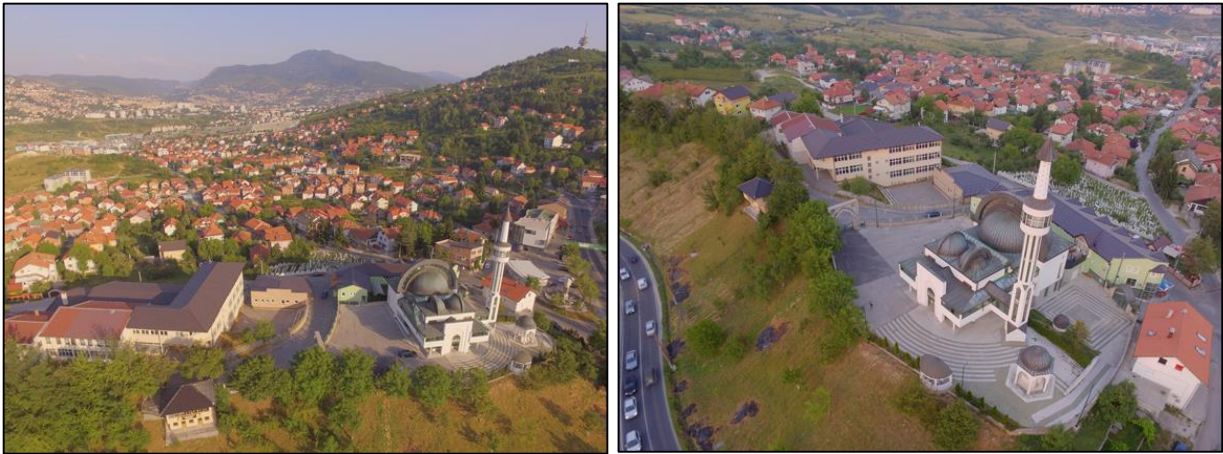
School Year	Number The Classroom	Number Departments	Number A Student	Secondary Evaluation	Number Employees	Main events in the school
1997/1998	4	8	289	3.92	25	The destroyed school building was restored to its original state by the French humanitarian organization "Eqvilibri". October 7, 1997 the ceremonial opening of the renovated facility was held in January 1998. The first issue of the school newspaper "Behar". The Iranian Committee for Aid to Bosnia and Herzegovina donated funds for the first reading books for the newly formed school library.
1999/2000	9	16	375	4.03	36	In the months of September, October and November, the addition of the school building was completed. The works were completed on November 22. With this addition, the school got 3 classrooms, an IT cabinet and four offices.
2007/2008	16	21	493	4.34	48	At the beginning of the school year, the technical acceptance of the newly built part of the school with 8 classrooms was carried out. In the second semester, they started using the newly built gymnasium.
2008/2009	16	22	511	4.57	49	For the first time, the first year's reception was organized as a joint event at the level of the Municipality of Vogošća. A very good success was achieved thanks to good working conditions. This year's show of cultural and artistic creativity was not of a competitive nature and schools were represented with one point each. Our school was presented by student Lejla Zvizdic with the monodrama "Rose", and it was prepared by teacher Emina Zukic. This school year, a social worker also worked at the school, which proved to be very useful for the school, students and their parents.

Source: The official website of the Elementary School "Zajko Delić" in the Kobilja Glava settlement (in Bosnian) <http://oszd.edu.ba/kontakti/>, Accessed: August 17, 2022.



Sources: Google Earth: Accessed August 16, 2022.

Fig 1: Elementary school in Kobilja Glava settlement, Vogosca Municipality, Sarajevo (2007). Location



Source: Vladimir Obradovic (July 24, 2017)

Fig 2: Elementary school, Adil Bey's mosque with the Cultural and Business Center and The central cemetery in the Kobilja Glava settlement



Teacher Asif Gljiva (born in 1941) at a 'physical education class' in the yard of the 'old school' in the Kobilja Glava settlement (1975)

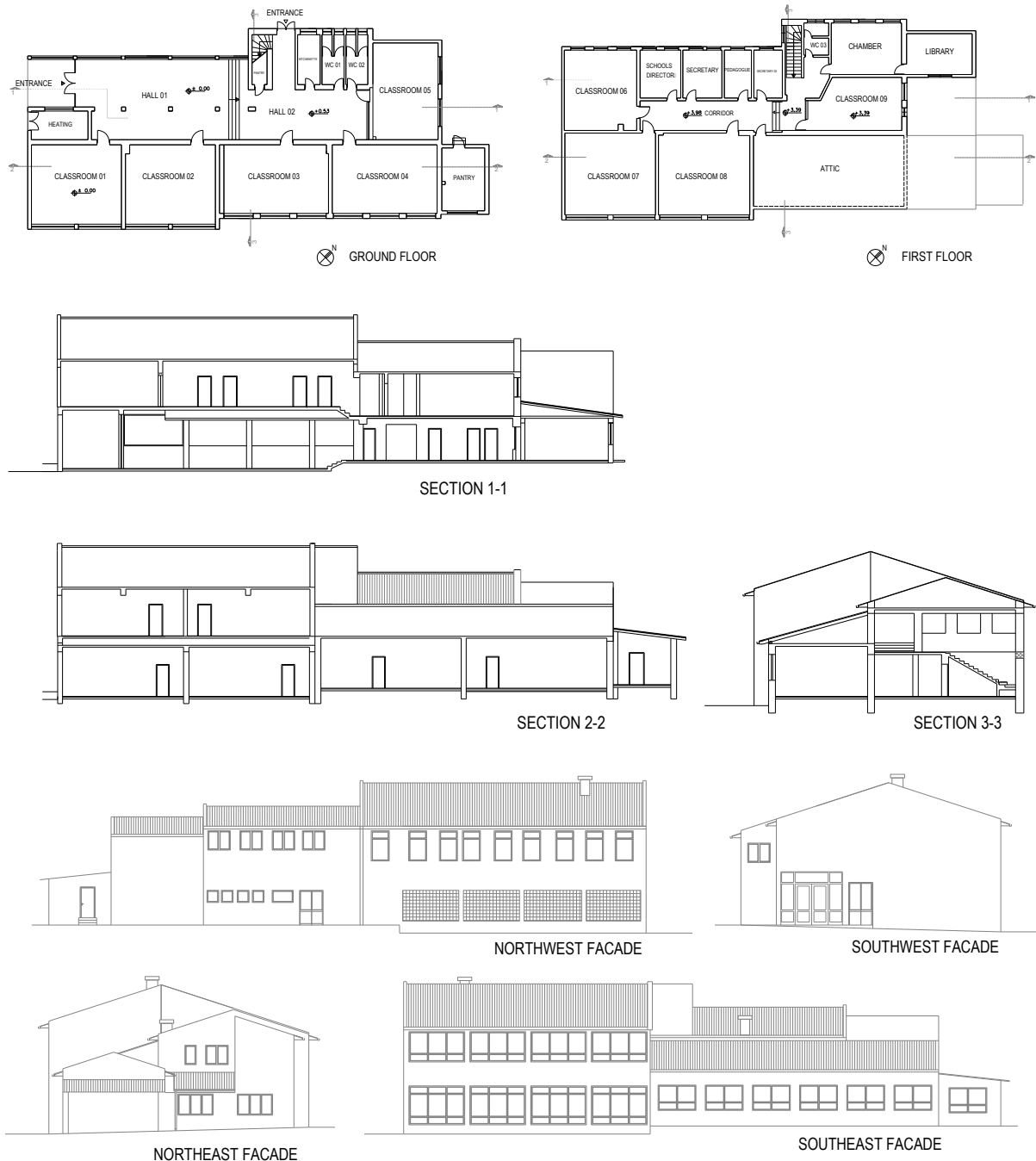


Source: Courtesy of Mr. Asif Gliva (August 18, 2022)

Source: Courtesy of the management of the school in Kobilja Glava settlement (August 18, 2022)

Fig 3: History of the school in the Kobilja Glava settlement in Sarajevo

The school building was destroyed in the 1992-1995 war



Source: Author: (Drawings, 2006)

Fig 4: The first addition to the school building in the Kobilja Glava settlement. Drawings

3. New school building (2007)

The "SCHOOL AND SPORTS HALL" building is located next to the existing elementary school building in Kobilja Glava settlement, Vogosca Municipality, on a plot marked as k.c.225/1, K.O. Mare's Head. The extension is made by:

1. Sports Hall
2. Classrooms, floors Basement+ Mezzanine+ Ground Floor+ Floor.

The addition (through the dilatation divider) leans against the existing building on the southern facade, which is functionally connected with the existing building through the new entrance hall.

The sports hall has a warm connection with the facility (classrooms); the possibility of autonomous functioning of

the hall through the entrance from the 'lower road' was realized.

The existing school yard has been preserved as much as possible and has been given the function of a school garden with an access plateau on the south side. At the same time, the western access to the school (from Slatinski put Street, today Kenana Brkanica Street) was retained.

The study "EXTERIOR DEVELOPMENT WITH NEW PARKING" deals with the external arrangement of the new building, which is organized on the entire plot of the school building with an important addition - CONSTRUCTION OF NEW PARKING ON THE PLOT K.Č. NO. 224/6, K.O. Kobilja Glava, which is located next to the new facility of the sports hall, between the local road and the existing retaining wall. This parking is necessary for the functioning of both the

school and the sports hall (the school - for parking teachers' vehicles, the hall - for parking the vehicles of guests and spectators. Namely, the sports hall has bleachers with about 500 seats, so parking for visitors is extremely important. In addition, the hall with a large hall and a cafe also has an open purpose - to be used by the general public).

The basic feature of the exterior arrangement is the fencing of the entire school complex with a fence (the details of which are given in the project documentation). The school yard, which is located on the south side of the new building, has been arranged as a multipurpose space (student gatherings, games, school events, and various open events).

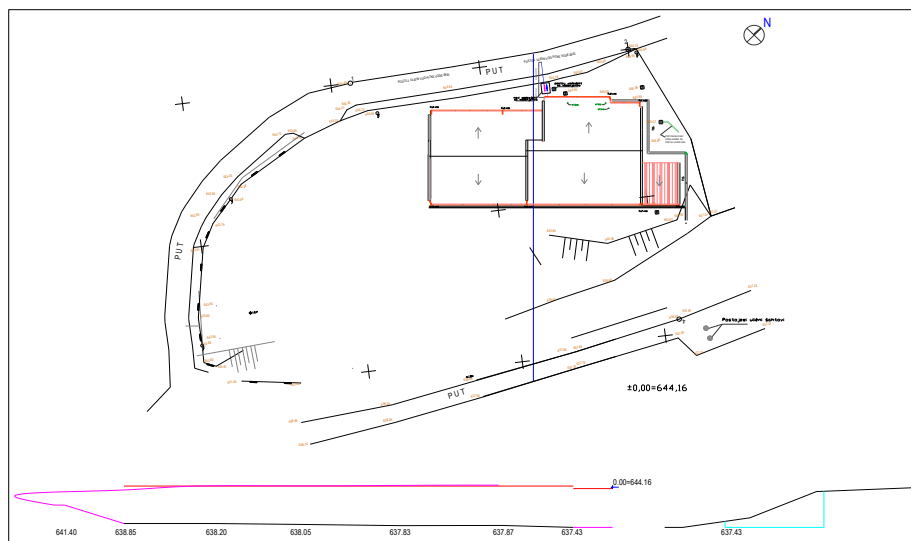
The courtyard/amphitheatre also has bleachers.

On the east side of the new building, next to the local road, there is an organized green area (lawn, botanical garden). Next to the fence on the south side of the yard is a belt with

deciduous trees, as well as a lawn and plantings of flowers and ornamental shrubs.

As part of the exterior arrangement, in addition to construction-craft works and horticulture, external hydrants and decorative lighting are planned.

The author worked on the 'second extension school' project after winning an invitational competition ^[2]. The victory in the competition was decided by the 'bold Author's idea', according to which the addition of the new physical structure of the school building 'provided for the addition and preservation of the previous school yard'. The addition resulted in new classrooms, a sports hall, areas for school administration, and a new school entrance yard, partially designed as a multi-purpose outdoor amphitheater (Figures 5-16). The sports hall is oriented towards both the school and the surrounding village ^[3].



Source: Geodetic Administration of Vogošća Municipality (July 2006)

Fig 5: The location where the new school building and sports hall was built in the Kobilja Glava settlement



Source: Author: (July 12, 2006)

Fig 6: The location where the new school building and sports hall was built in the Kobilja Glava settlement

² Excerpt from the „Technical description“ given with the project documentation made in 2007.

³ In addition to the 'organic' connection with the other contents of the school, the possibility of using the hall 'from the outside' has been left. In addition to

sports activities for students and youth, this sports hall is used as a space for organizing various cultural events.

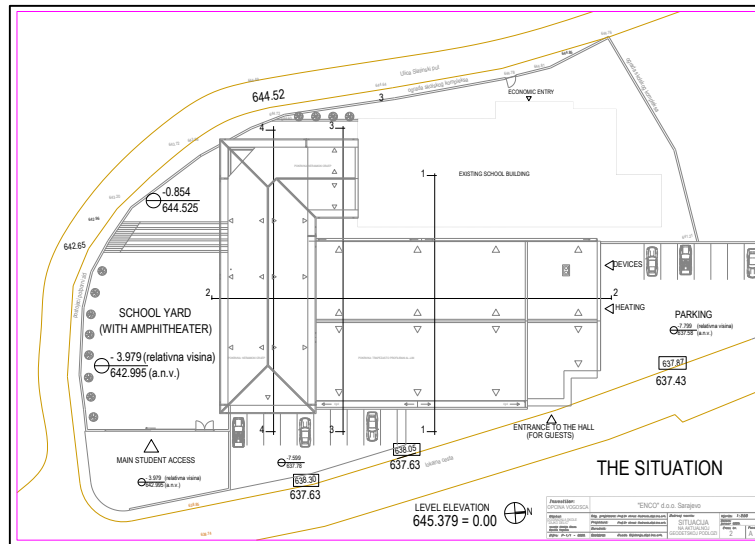
3.1 Disposition of the school

The project used the potential of the terrain configuration of the location in an extraordinary way: the sports hall could thus be built only thanks to the terrain (the difference between the floor level of the hall, which is oriented to the 'lower' road, and the floor level of the ground floor of the school), (Figure 5).

The school complex consists of the old school building, a newly built building with a sports hall and an annex next to the sports hall. All buildings are interconnected so that they represent a functional whole. For the realization of curricular and extracurricular activities with over 500 students, the school has 16 classrooms/cabinets, a sports hall and a library

with a reading room. In the annex next to the sports hall, next to the already built heating room that heats the entire school, rooms for external users are planned.

Classrooms/cabinets are equipped with new furniture adapted to different ages and subject needs. The basic teaching tool in 13 classrooms/cabinets is a multimedia projector so that it is possible to ensure a complete audio-visual effect during the realization of teaching content. 45 computers are used, and Internet access is provided in all school premises. The 600 m² sports hall has the highest quality equipment, and in addition to changing rooms and showers, it provides complete comfort for sports activities.



The situation

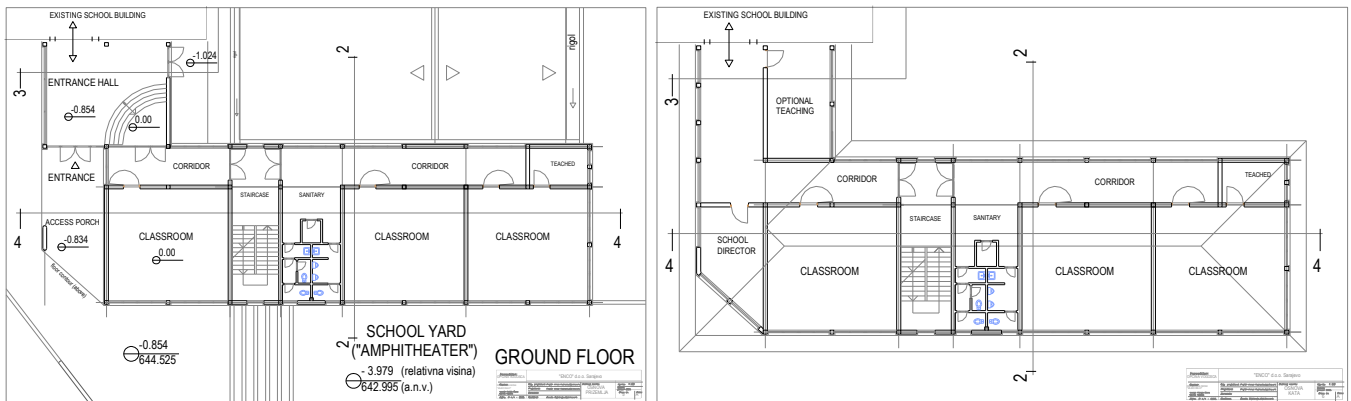
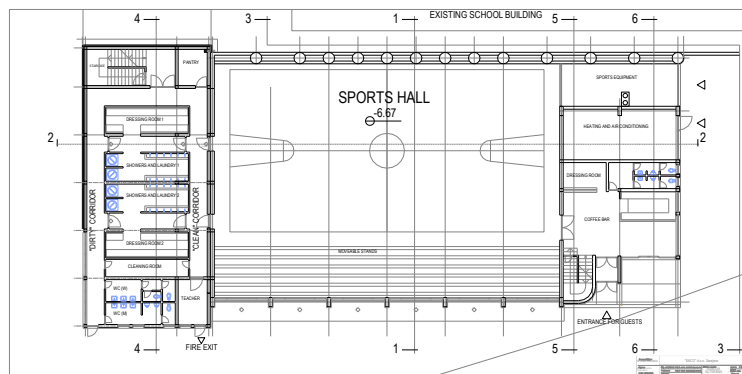
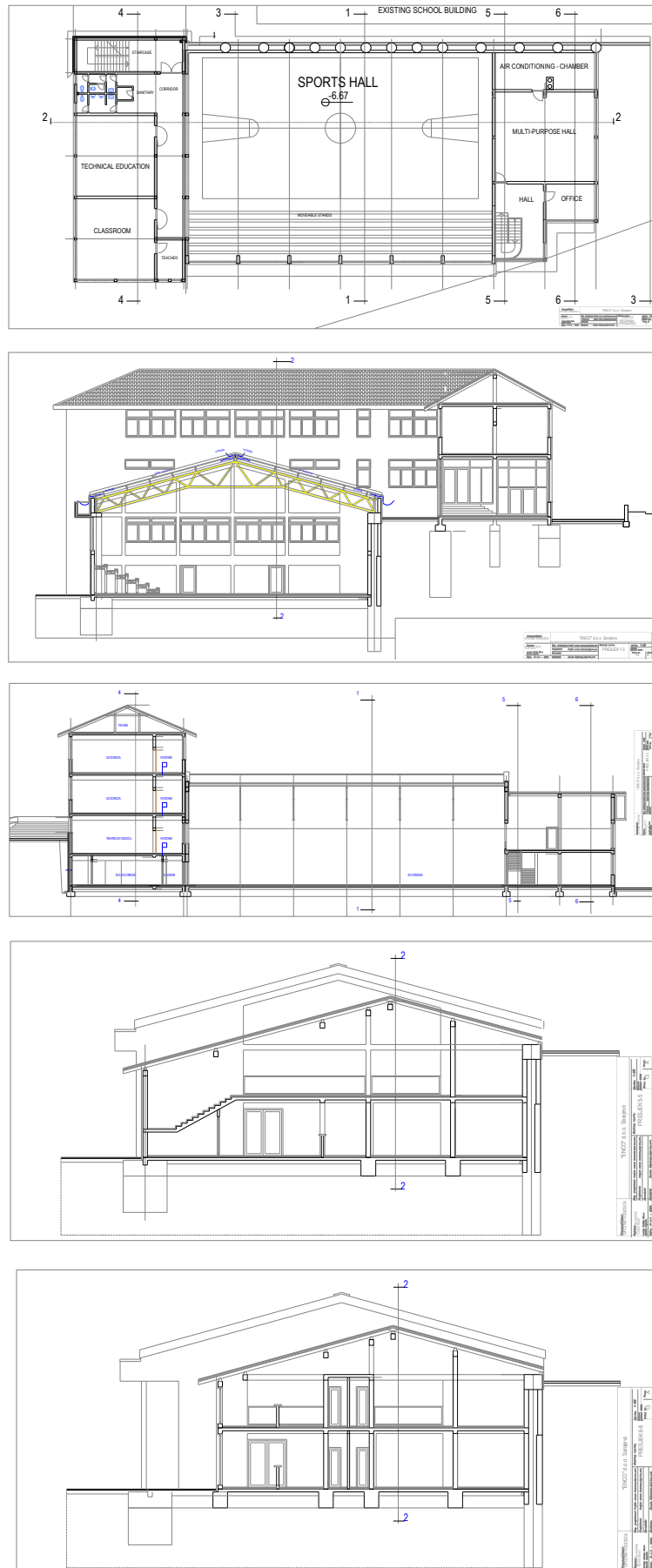


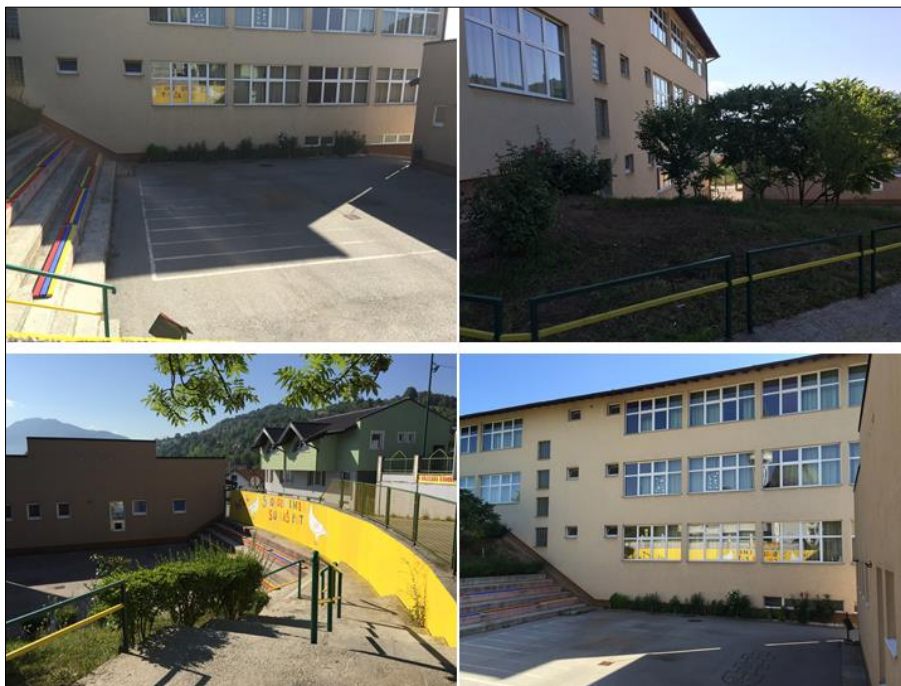
Fig 7: Elementary school in Kobilja Glava settlement, Vogosca Municipality, Sarajevo. Drawings





Source: Author (Drawings 2010.)

Fig 8: Elementary school in Kobilja Glava settlement, Vogošća Municipality, Sarajevo. Drawings



Source: Author (August 17, 2022)

Fig 9: The school's new courtyard is designed as an open amphitheater

3.2 Construction and materialization of the physical structure of the new school and sports hall

From a constructive point of view, the key to the realization of the author's idea 'both the new gymnasium and the preservation of the existing school yard' was the realization of strong reinforced concrete piles directly next to the existing building of the 'old school' (at a distance of only 1.5 meters). These piles preserved the physical stability of the 'old school' building and enabled the execution of large-scale earthworks - excavation for the siting of the new sports hall (Figure 10). The concreting of the retaining wall between the already driven piles was carried out successively, from top to bottom, synchronized with the excavation of the soil. According to the arranged geological findings, the depth of the load-bearing soil was at a depth of seven meters from the level of the floor of the new sports hall, so the total height of

the piles was 14 meters. On the tops of the piles and reinforced concrete columns on the opposite side (along the 'lower road'), strong reinforced concrete beams with the letter 'U' profile were made to serve as a gutter for draining water from the roof of the hall (Figure 8).

At the point where the physical structure of the 'new school' and the ground in the part of the 'old school' meet, the staircase of the building of the 'new school' is located, the walls and stairwells of which are made of reinforced concrete. In this way, the staircase deepened the role of the anchor of the structure of the new school, and during the execution of the construction, it ensured the stability of the ground from collapsing (Figure 10). The constructive system of the 'new school' building consists of a reinforced concrete skeleton with reinforced concrete sheets in two orthogonal directions that ensure the stability of the physical structure of

the 'new school' on seismic (Figure 10). Reinforced concrete slabs (thickness 20 cm) are a inter-floors construction. A reinforced concrete slab is built between the second floor and the attic. The roof structure is made of a combination of reinforced concrete columns and beams and a structure made of wooden beams and rafters. On the 2nd floor - attic panel, on the side of the attic space, thermal insulation (thickness 10 cm) was done after the final layer of screed (thickness 5 cm).

In this way, the attic, in addition to the storage function, also took on the role of a 'protective barrier' that provides additional thermal insulation in the winter, and in the summer it ensures the 'thermal stability' of the teaching space (under the attic) ^[9, 10].

The 'new school' buildings and the sports hall were built with high-quality materials and in compliance with the highest construction standards.





Source: Author: (March 15, 2007 and August 26, 2022)

Fig 10: Elementary school with sports hall in Kobilja Glava settlement, Vogosca Municipality, Sarajevo (2007). (Architect: Ahmet Hadrovic, constructor: Hajrudin Hodzic, Master's degree civil engineer)

3.3 Design of the 'new school' building and sports hall

In the immediate vicinity of the elementary school complex in the Kobilja Glava settlement is the newly built Adil-bey's mosque (1999) and a cultural and business center. The mosque is a monumental architectural structure that by all accounts belongs to the 'big mosques' in Bosnia and Herzegovina^[5,6]. Between this monumental structure and the settlement with fragmented structures of individual residential buildings is located the Elementary School Complex. In the design of this complex, the architect tried to

'make a transition' between the design of a monumental mosque and individual houses. On the School Complex, pitched roofs covered with profiled steel sheets in the color of tiles were used, which, when viewed from the side, gives the impression of a 'big house' (Figures 2,11).

The openness of the school complex towards the settlement and the wider environment (wide use of the sports hall, the existence of commercial facilities for the population of the settlement) makes this complex close to people (Figure 21).



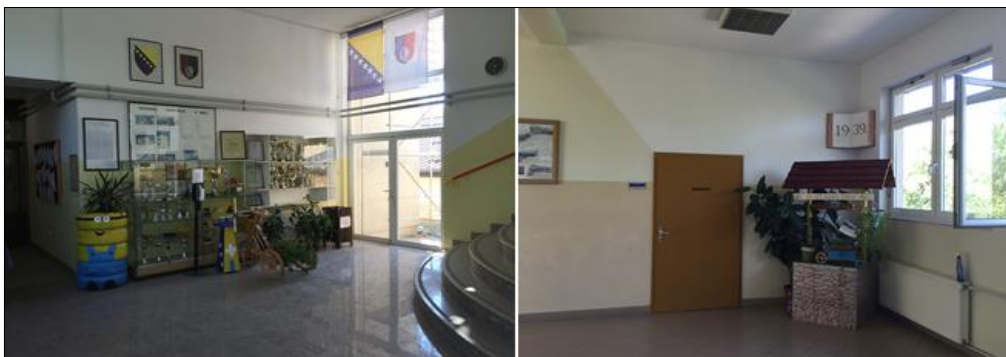
Left: Photo before the construction of the extended stay building and the arrangement of the amphitheater

Source: Author: (September 10, 2010)

Right: Photo of the current state of the school

Source: Author (August 17, 2022)

Fig 11: Elementary school with sports hall in Kobilja Glava settlement, Vogošća Municipality, Sarajevo

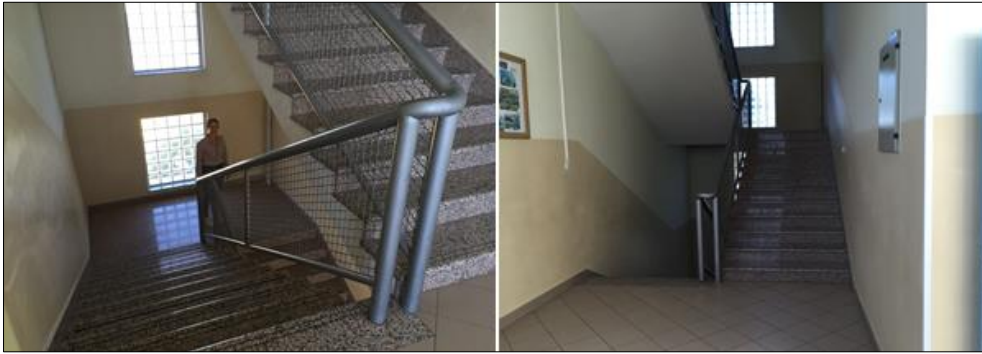


Source: Author (August 17, 2022)

Left: entrance hall of the school

Right: arrangement the hallway in front of the school secretary's office

Fig 12: Elementary school with sports hall in Kobilja Glava settlement, Vogosca Municipality, Sarajevo



Source: Author (August 17, 2022)

Fig 13: Central staircase in the 'new school' building



Source: Author (August 17, 2022)

Fig 14: Classrooms/cabinets in the 'new school' building



Source: Author (August 17, 2022)

Fig 15: Sanitary facilities (with storage space for hygiene products) in the 'new school' building

4. The “Extended stay building” for schoolchildren (2010)

“The Extended stay building” is located next to the existing elementary school building in the Kobilja Glava settlement, Municipality of Vogosca, on a plot marked as k.c.225/1, K.O. Mare’s Head. The facility is an integral part of the school complex. “The Extended stay building” is located on the southeastern part of the plot of the school complex, at the corner formed by Slatinski put Street (now Kenana Brkanica Street) and the newly built road (which starts at the school complex) on the eastern side (Figures 16-19). The main entrance to the school complex, which was placed on the east side, was predetermined by the new building (at the same time, the economic entrance to the school and the entrance for disabled people remained from Slatinski put Street).

The sports hall is also oriented towards the new entrance, which in the new situation becomes a service not only for external use but also for the use of the courtyard with the amphitheater.

The school yard is completely surrounded by a suitable fence. The outdoor basketball court (located on plot K.C. NO. 224/6, K.O. Kobilja Glava) rests on the newly built sports hall, and can (with control) be used as a common good of the community.

“Extended stay for children-pupils” is a ground-floor building consisting of rooms: access canopy, wind screen, cloakroom with toilets (for children), main classroom, multi-purpose area, kitchen, office for caregivers (teachers), children’s living room and toilets for staff. The organization of the space enriches its flexible use.

The basic structure of the building consists of load-bearing

reinforced concrete walls and columns, and a reinforced concrete monolithic slab towards the ceiling. The infill walls are made of brick blocks d 25 cm with thermal insulation (d 10 cm) and an external final layer ('STO-façade') and internal final layers, depending on the purpose of the rooms. The roof is multi-pitched, sloping, constructed in a combination of reinforced concrete columns and beams and wooden structures. The cover is a steel sheet, plasticized, with a 'channel' profile.

All external elements of the opening (as well as the doors on the toilets) are locksmith positions (Al-profiles plasticized in white).

The facility for the extended stay of children is equipped with water and sewerage installations, electrical installations and central heating installations. All installation systems are connected to the systems of the existing school and to the already completed installations (school facility - city installation infrastructure).

The basic feature of the exterior arrangement is the fencing of the entire school complex with a fence. The school yard, which is located on the south side of the new building, is arranged as a multipurpose space (gathering of students, games, school events, and various open manifestations). The yard also has stands (amphitheatre). On the east side of the new building, next to the local road, there is an organized green area (lawn, botanical garden). Next to the fence on the south side of the yard is a belt with deciduous trees, as well as a lawn and plantings of flowers and ornamental shrubs. As part of the exterior design, in addition to construction-craft works and horticulture, decorative lighting is also planned.

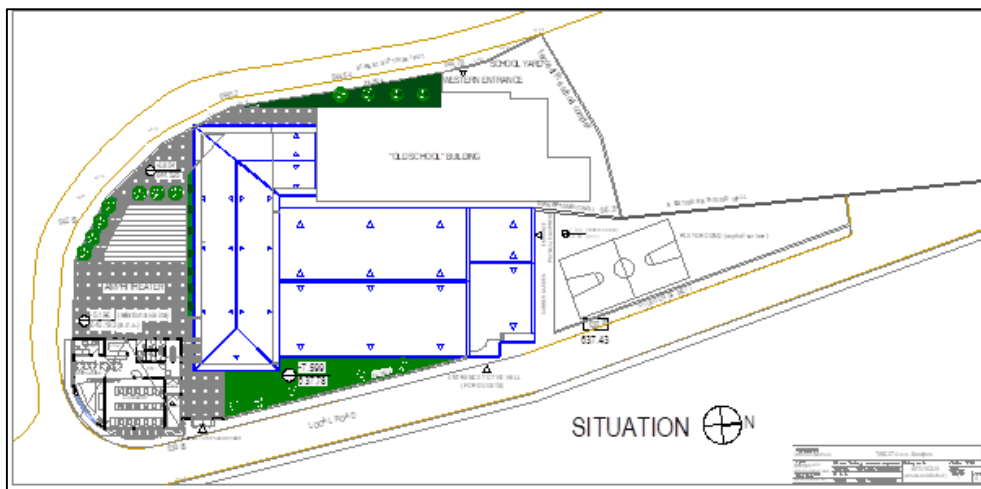
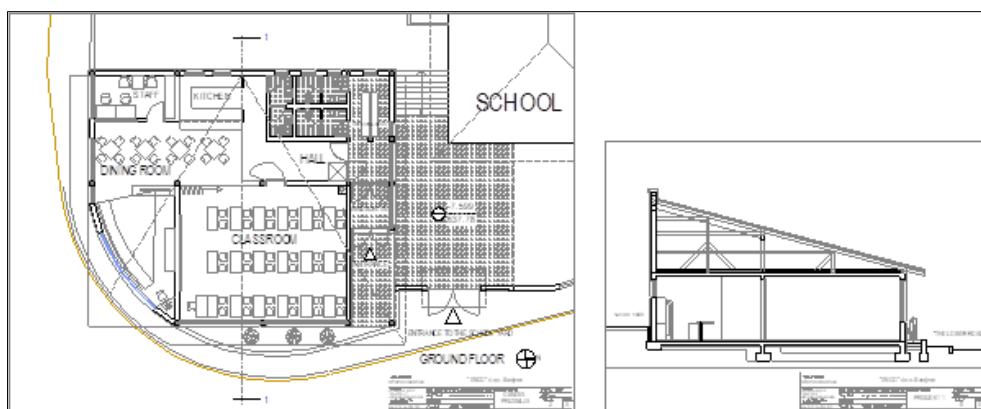


Fig 16: Elementary school complex in Kobilja Glava settlement after 2010



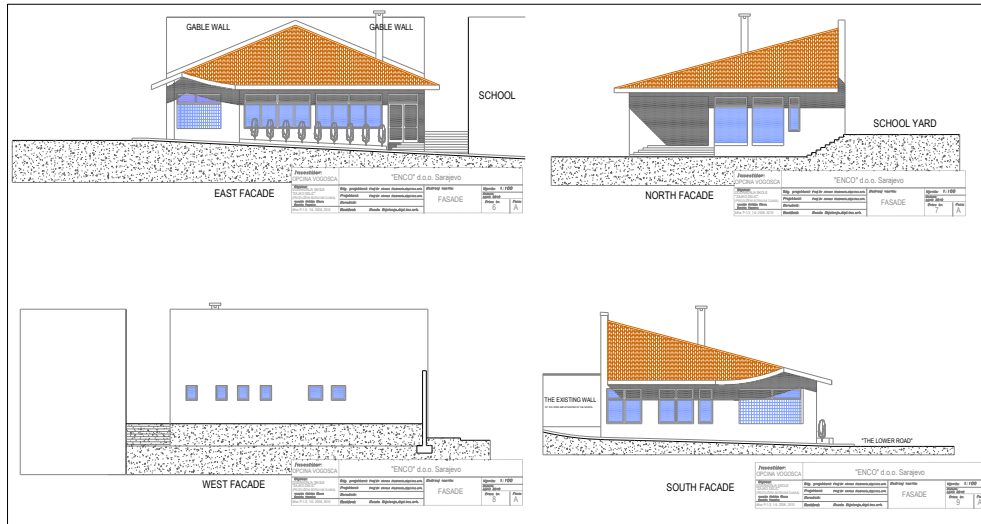


Fig 17: The Extended stay of children-students' in the elementary school complex in Kobilja Glava settlement (2010)



Source: Author (August 17, 2022)

Fig 18: Entrance to the 'Extended stay of children-students' building in the elementary school complex in Kobilja Glava settlement





<http://oszd.edu.ba/galerija/>, Accessed: August 16, 2022.

Fig 19: The atmosphere in the 'Extended stay for children-students' building in the elementary school complex in the Kobilja Glava settlement



Fig 20: The elementary school complex in the Kobilja Glava settlement is open to its surroundings
Source: Author (August 17, 2022)



Source: Author (August 17, 2022)
Above: shop for school equipment and teaching materials
Below: the waiting room of a private dental practice

Fig 21: The elementary school complex in the settlement of Kobilja Glava is open to its surroundings

Conclusion

The elementary school complex in the Kobilja Glava settlement in Vogosca Municipality, Sarajevo, is characteristic as an architectural structure that developed for more than 80 years (the school was founded in 1939) following its 'social environment' ^[11]. From the initial four-grade school, it reached the level of a nine-grade elementary school with 16 classrooms with more than 500 students. Today, the school, as a physical structure, is built according to high professional standards (high level of energy efficiency), with all modern installation systems (including the Internet). The school premises are equipped with modern classrooms and other necessary equipment. The sports hall, except for the needs of the school, is open to the wider community where sports competitions are held and various social events are organized. The extended stay for children-pupils has additionally raised the status of the school, i.e. the comfort level of the children-pupils and their parents.

As the project of the school complex predicted, within the physical structure of the sports hall there are multi-purpose spaces that the school administration rents to 'third parties', which generates additional financial resources for the school (At the time of writing this paper, there is a store for school equipment and accessories and a private dental practice), (Figures 20, 21).

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