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An Evaluation on Plan and Facade Compositions in Architect Kemaleddin's Educational Buildings[1]

Zeynep İldeniz KÖKSALAN[1,*], Murat ŞAHİN[2]

[1] *0000-0001-7060-5660, Firat University Faculty of Architecture Department of Architecture, Elazığ*

[2] *0000-0001-6733-1136, Firat University Faculty of Architecture Department of Architecture, Elazığ*

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Abstract

Architect Kemaleddin, one of the pioneers of the idea of creating a National Architecture, took part in the design of many buildings with different typological features. During his most productive years, he designed many school buildings. The design approach adopted in the production of plans and facades has been defined as the "Kemaleddin School".

In the study, better understanding the plan and facade style of Kemaleddin's educational buildings was determined as the research subject. Within the scope of the study, the Reşadiye School, Sultan Abdülhamid-i Evvel Madrasa, Medreset-ül Kuzat, Bostancı İbrahim Paşa Primary school, Göztepe Primary school and Gazi Education Institute buildings designed by Architect Kemaleddin were evaluated. It is aimed to evaluate the typological similarities and differences of the plans and facades of Kemaleddin's educational buildings by creating tables.

As a result of the study, the frequent occurrence of rectangular, L and U-shaped plan layouts and the presence of protrusions that emphasize the entrance were determined to be common features of the buildings. It gives the impression that the facade design is designed in vertical and horizontal parts and that there is a rhythmic order. Especially the use of rectangular and pendant arched molded windows with different shapes between the floors and the wide eaves roof form were observed as characteristic features of educational buildings.

1. INTRODUCTION

Advances in architecture have been in direct relationship with the economies, technical know-how, policies and cultures of nations throughout history [1]. When viewed from the perspective of historical events, it is possible to say that the 16th century Ottoman architecture was at the most advanced level in terms of technique and aesthetics [2]. The concept of modernization came to the fore with the dramatic increase in the knowledge gap between western states and the Ottoman state in the 18th century [3;4]. The first steps of the modernization movement were seen primarily in transportation, trade and military fields, and traces of modernization were also seen in the field of education, bureaucracy and architecture [4;5].

The first developments in the field of education during the modernization process were at the higher education level and were made with the aim of increasing the quality in the military field. Subsequently, educational reforms continued at primary and secondary education levels [6]. The modernization movement in education was implemented mostly in Istanbul during the Tanzimat period, and became widespread in Anatolia during the Abdulhamid period. In these years, the numbers of elementary schools, middle schools, high schools, and girls' schools have increased [7]. II. After the Constitutional Monarchy, unlike the education reforms implemented in previous years, madrasahs were also included in the education reform. Gökalp's understanding of the education model, which emphasizes society, is one of the important developments in the field of education [7;8;9].

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* Corresponding author: z.ildenizkoksalan@outlook.com

Investments in educational buildings were a matter of great importance in the last periods of the Empire and the Early Republic period [10]. The Education Congress held during the war years proves this situation [8]. Starting from the Republic period, madrasahs were abolished with the Tevhid-i Tedrisat law, and contradictions in the education system were eliminated and education was made secular and national [8;9]. The problem of designing new buildings that will adapt to changes in the field of education has emerged [5;11].

While in the pre-modern period, Ottoman educational structures developed around teachers and students who did not have a defined place, the areas where education was provided were defined with the modern education system. In this context, educational structures consisting of a certain curriculum and appropriate spaces have emerged. This structuring in educational structures dates back to the 19th century. century and XX. It has been generally adopted by states in the century. In this direction, the national identities of the states have begun to be effective in the design of buildings. With the increase in nationalism in the Ottoman Empire, there were also changes in architecture. During these periods, called the First National Architecture Period, a style emerged in which architectural elements reflecting the characteristics of Classical Ottoman Architecture were used fondly, as opposed to European architectural art and style. Although symmetrical fiction was effective in the plans and facades of the buildings designed in this style, the facades of the buildings were given more importance. In addition, the symmetrical understanding in the plan layouts of the buildings of this period was also reflected on the facade[12;13]. The layout and plan layouts of the buildings remained in the background. When we look at the characteristics of the buildings of this period, it seems that architectural elements such as pointed and low arches, domes, wide eaves, reliefs, muqarnas, and tile decorations in Seljuk and Classical Ottoman Architecture were frequently used in facade constructions[14;15].

There are studies in the literature that comprehensively investigate the changes in the field of education. Educational buildings in Istanbul were discussed and evaluated in terms of their architectural features, decorative elements and construction techniques [16;17;18]. In studies examining educational buildings in Ankara [19;20], Izmir [21], İstanbul[15;22] and Anatolia [23;24;25], a typological framework was created in terms of plans and facades. Based on these studies, it is possible to say that the educational buildings built from the early 1900s to 1930 were designed with the concern of creating a national identity. Research shows that the plans in educational buildings are mostly symmetrical and contain side-functional spaces in line with new needs. It is noteworthy that on the facades, classical elements were selected, simplified and applied by considering the technology of the period.

Drawing attention with his efforts to create a National Architecture in his designs, Kemaleddin's influence on educational buildings distinguishes him from his contemporaries [26]. Architect Kemaleddin designed many educational buildings between 1909 and 1927, sought solutions to new design problems, and is one of the first modern Turkish architects. It appears as an important name in this respect [27].

The aim of this study is to try to understand the plans and facades of the educational buildings designed by Kemaleddin. Within the scope of the study, the architectural understanding of the period covering the transition from the Empire to the Republic was touched upon, and Kemaleddin's architectural story and the historical development of educational buildings were conveyed. The architect's educational buildings were examined under three main headings: schools, madrasahs and higher education institutions. Within the scope of the study, the plan and facade features of six buildings, namely Reşadiye Primary School, Sultan Abdülhamid-i Evvel Madrasa, Medreset-ül Kuzat, Bostancı İbrahim Paşa Primary School, Göztepe Primary School and Gazi Education Institute, were compared by creating tables. As a result of the comparisons made, the effect of the architectural style of the period on the buildings was emphasized.

2. METHOD

Within the scope of the study, a literature research was conducted specifically on educational buildings, and comparative analyzes were made by creating tables and the features of the plans and facades (doors, windows, decorations and roofs) of historical buildings. The typological and morphological similarities and differences of the plans and facade designs of Kemaleddin Bey's educational buildings, Reşadiye

Primary School, Sultan Abdülhamid-i Evvel Madrasa, Medreset-ül Kuzat, Bostancı İbrahim Paşa Primary school, Göztepe Primary school and Gazi Education Institute buildings were evaluated by creating tables. In this context, the aim of the study is to examine the reflections of the design approach of the model difference in the educational buildings designed by Architect Kemaleddi. An attempt has been made to reveal the relationship between this design approach and the national architectural movement of the period in the plan and facade solutions of the buildings.

3. EDUCATIONAL BUILDINGS OF ARCHITECT KEMALEDDIN

Throughout history, people and societies have designed structures as a result of the physical and socio-cultural norms of the region in which they are located. These spaces and the structures created by these spaces have evolved and transformed over time and have survived until today. In the process, changes in the structures that make up the built environment have become inevitable due to reasons such as important technological developments and transformations and architectural movements [28]. With the concept of nationalism affecting the world, the understanding of nourishing from tradition and learning from the past has become widespread in civilizations [28;29]. While this understanding showed its influence in the West with the emergence of orders resembling Greek and Roman architecture, the influence of nationalism in Ottoman architecture; Turkish art is seen within the framework of understanding and preserving the design approach in Classical Ottoman and Seljuk works [29].

The First National Architecture Period, was when Turkish nationalism gained importance, changes were experienced in many areas in the Empire, and there was a need to build modern public buildings suitable for the changing conditions[5;30]. It is possible to say that there was an emphasis on rational and functional plans in the plan schemes of the architectural products of the First National Architecture period [32]. A symmetrical layout with entrance from the middle axis is frequently seen in buildings [33]. Designing the facade in three parts and giving importance to the front facades bear traces of the Renaissance tradition [31;34]. The facades are mostly designed symmetrically with respect to the entrance axis, just like the plan layout. There are examples where the entrance is emphasized similar to the crown gate. It is frequently encountered that the dome cover system and the hipped roof are used together [21;34]. The ornamental elements under the eaves, marble main stair railings, relief and ornamental elements reflect the Seljuk and Ottoman tradition [34]. Depending on the cultural changes in society, there are also differences in terms of interior layout. Ventilation, bathroom and heating installations were considered at the planning stage [35].

The idea of national architecture; It would not be wrong to say that it contains traces of the concepts of creating a national identity, maintaining Turkish art, learning from the past and nationalism. Arif Hikmet Koyunoğlu, Ali Talat Bey, Architect Muzaffer and Giulio Mongeri also have buildings showing these features[31].During the process, Turkish intellectuals such as Kemaleddin Bey and Vedat Tek carried out valuable works aiming to create a national architecture as a reaction to the understanding of westernization.

Architect Kemaleddin Bey, witnessed many important events that took place in the last years of the empire during his childhood and youth. In 1876, he started his secondary education at İbrahim Ağa Mekteb-i İbtidaisi in Suda, Crete, due to his father's duty in the Ottoman navy [37]. After returning to Istanbul two years later, he continued his education at Şems-ül Maarif [37;38;39]. In 1887, when he started Hendese-i Mülkiye, Prof. He received higher education from experts such as Jasmund [40]. In 1891, he studied at Hendese-i Mülkiye Mektebi as Prof. He was appointed as Jachmund's assistant and opened his private office [41]. He was sent to Berlin by the state in 1895, and after completing his two-year architecture education at Charlottenburg Technische Hochschule, he worked in Germany for two and a half years [39;41]. After returning home in the following years, he gave lectures at Hendese-i Mülkiye and Sanayi-i Nefîse Mektebi[42]. After a short time, he was appointed to the Ministry of Military Affairs with an additional duty [42;43].

Figure1. *A Photograph of Architect Kemaleddin Bey[44]*

He became a very active name in building production after being appointed to the Construction and Repair Committee of the Ministry of Foundations between 1909 and 1919 [42]. During these years, he worked for the Architect and Engineer Professional Society and its magazines in order to ensure professional organization [45]. In 1914, in addition to this position, he was appointed to the Istanbul City Council of Science Consultancy. During these years, he designed buildings such as contemporary school buildings, hospital buildings, commercial buildings, residences and station buildings in line with the needs of the period. He carried out various construction and repair works of large commercial buildings, mosques, schools, and became an influential name in the design of educational buildings and religious buildings [39;42]. Kemaleddin Bey, who had important works on the restoration of historical monuments, went to Jerusalem in 1922 for the repair of Masjid al-Aqsa. He returned to Ankara in 1925 to work as the chief architect of the General Directorate of Foundations for the reconstruction of the country [41]. The formation of an architectural environment in Ankara where indecision and criticism began affected Kemaleddin Bey deeply, and he died as a result of a brain hemorrhage in 1927 [42]. Kemaleddin Bey's "public architect" identity, which was integrated with state appointments throughout his career, enabled him to have a say in architectural production with his technical team of young architects in the Ministry of Foundations and to work mostly on public buildings [46]. It is understood from Kemaleddin Bey's writings that the design philosophy of the period concentrated on the idea of fully accepting technical developments and applying these developments on a national line [47].

The design process of modern educational buildings has many aspects that differ from the classical Ottoman educational institutions, primary schools and madrasahs. During the design phase, the issue of how to spatially position circulation elements, wet volumes and building entrances in educational buildings has become one of the important design problems that need to be resolved [42]. With the change in the methods used in education, classrooms lined up in rows with an instructor and many students appear as the main place where education is given [6;42]. Side-functional spaces such as painting workshops, dormitories and dining halls were needed [48]. In terms of facade structures, it is possible to say that Kemaleddin's educational buildings have the characteristics of the First National Architecture period and were designed in a simpler structure than other building typologies. The design approach adopted by the architect in the facades and plans of educational buildings is defined as "Kemaleddin School", proving that it has an important place among the designs of educational buildings [48].

Architect Kemaleddin has educational building designs in Istanbul, Ankara, Edirne and Medina. In addition, projects similar to school projects have been implemented in Anatolia. There are sources stating that the architect designed nearly forty school buildings during the years of the Ministry of Foundations [49]. In this study, the architect's known educational buildings were examined under three main headings: schools, madrasahs and higher education institutions. When these structures are evaluated chronologically, it is difficult to follow a linear process in terms of design decisions, but it is understood from the material and construction technique preferences that the technological developments between 1909 and 1927 were followed. It is possible to see that school designs during the Republican period

evolved towards a simpler understanding that represented the new regime [50]. In the study, the plan organizations and facade structures of Reşadiye Primary School, Sultan Abdülhamid-i Evvel Madrasa, Medreset-ül Kuzat, Bostancı İbrahim Paşa Primary School, Göztepe Primary School and Gazi Education Institute were evaluated.

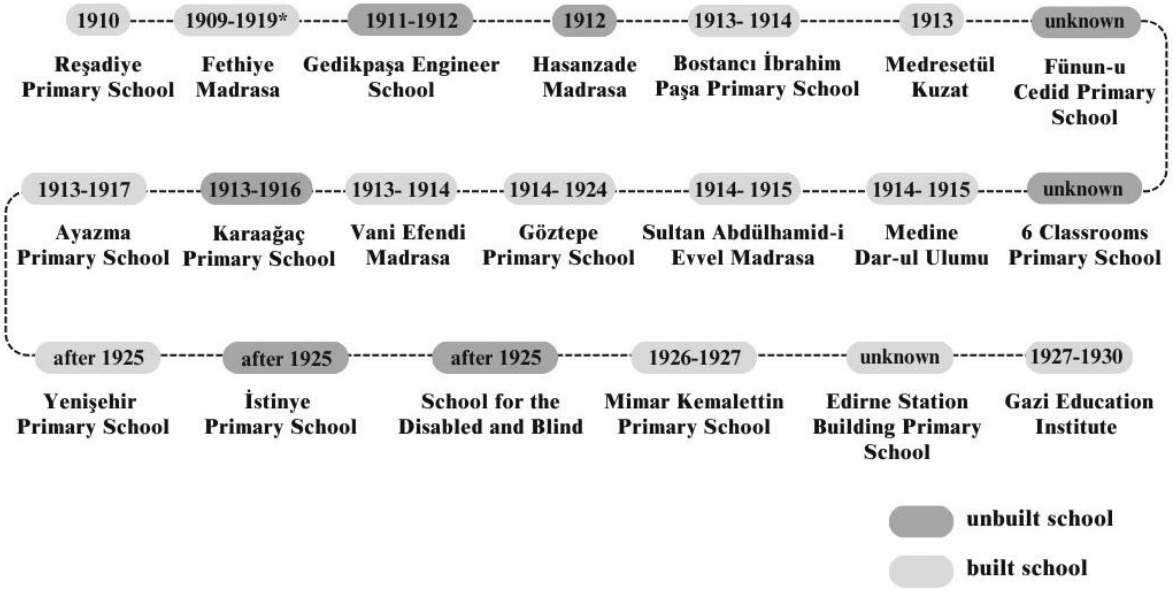


Figure 2. *Educational Buildings of Architect Kemaleddin in the Historical Process[42]*

3.1. Primary School Buildings

Primary Schools was seen as the first educational level of modern education after the changes in the field of education. Kemaleddin's known school designs; Karaağaç Primary School, School for the Disabled and Blind, School Project in Istiye, Sultan III. Mustafa Primary School, Fünun-u Cedid Primary School, Mimar Kemal Primary School, Edirne Station Building Primary School, School with six classrooms [51]. The single-storey simple planned design for the Karaağaç Primary School was not implemented on site, but there are many examples similar to this project in Anatolia [42;52]. It can be said that the architect had a complex plan because it included spaces with various functions such as dining halls and meeting rooms in Istanbul such as Bostancı, Reşadiye, Ayazma, Göztepe [42].

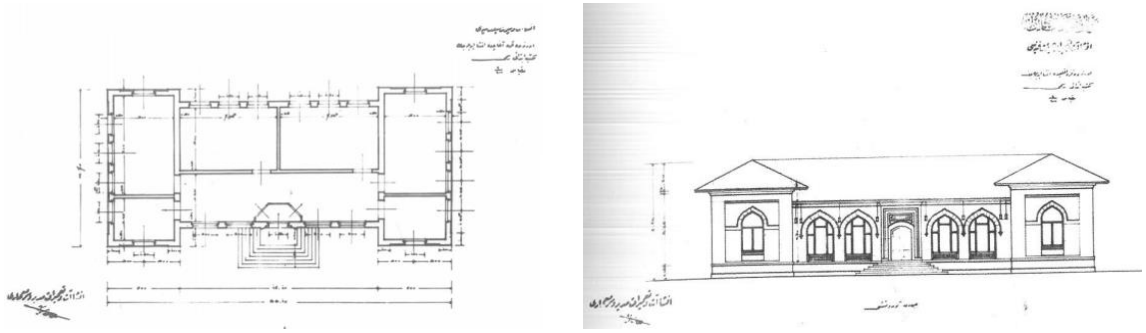


Figure 3. *a) Karaağaç Primary School Ground Floor Plan, b) Karaağaç Primary School Front Facade [42]*

3.1.1 Reşadiye Numune School

The building, located in the Eyüp district of Istanbul, was built upon the request of Reşat the Fifth and is located on the same land as the Tomb of Mehmet Reşat V, designed by Architect Kemaleddin [23;42]. The building in L plan layout consists of a basement, ground floor and first floor [53]. Today, changes have been made in the plan setup.

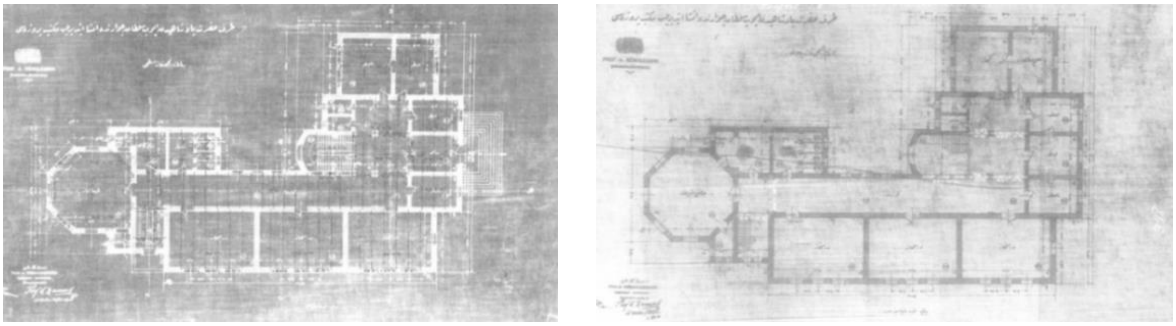


Figure 4. *a)Reşadiye School Ground Floor Plan, b) Reşadiye School First Floor Plan [42]*

The diagonal-shaped room on the ground floor was designed as a dining hall in the original project [38]. This octagonal-shaped space, completed with a double-walled dome cover, was designed as a masjid in the original project on the first floor. This proves the place of religion in the education program in the early 1900s[42;53]. Access to the building is provided through a low arched entrance door. The star and crescent motif on the door attracts attention. A symmetrical setup was adopted on the front facade compared to the entrance, and the prominent mass was emphasized by moving it up over the eaves level. There are square-framed geometric reliefs on the wall surface just below the eaves on the front facade.
Plaster-shaped rectangular panels are seen in the upper floor facade [42]. Penci arched and rectangular shaped windows have penci and flat frame moldings on their upper parts that follow the window form. It was built using brick material with the masonry construction system and has steel beams in its floors [42;53;54]. The top of the hipped wooden roof is covered with tiles and the masjid section is covered with lead material.

Figure 5*. a)Reşadiye School Facade Photo [23], b)Reşadiye School Facade Photo [55]*

3.1.2. İbrahim Paşa Primary School

Bostancı Primary school, located in the Bostancı district of Istanbul, was built together with the Bostancı Mosque located adjacent to it. The building, planned in an L shape, consists of a basement, ground floor and first floors [17;56]. As a result of the repairs made in the following years, the original plan and facade structure changed.

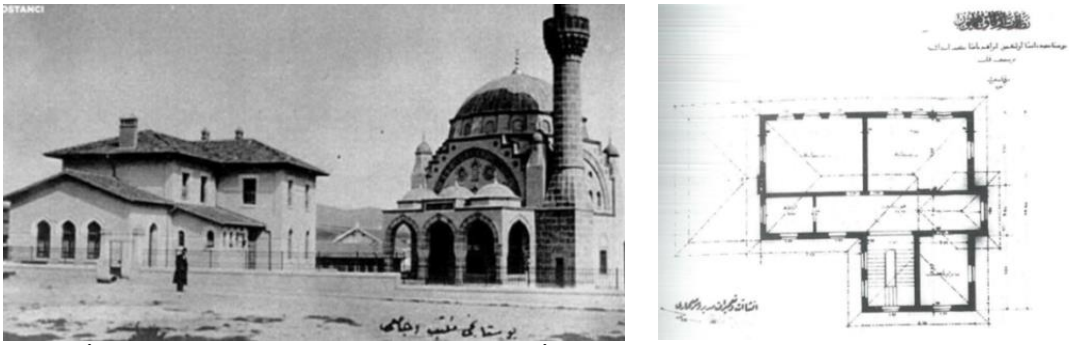


Figure 6. *a) İbrahim Paşa Primary school [57], b) İbrahim Paşa Primary school First Floor Plan [42]*

There is a massive overhang in the middle axis of the building, which is accessed through a staircase entrance, emphasizing the entrance. While penci-arched windows are seen on the ground floor, the upper floor windows are rectangular in shape. In Bostancı School, the use of molding on windows and floor molding between floors are also seen [17;42]. It can be seen that the window groups on the upper floor are surrounded by panels. The wooden hipped roof has wide eaves and is covered with tile covering. The building was built using brick material using the masonry construction system [42;56].

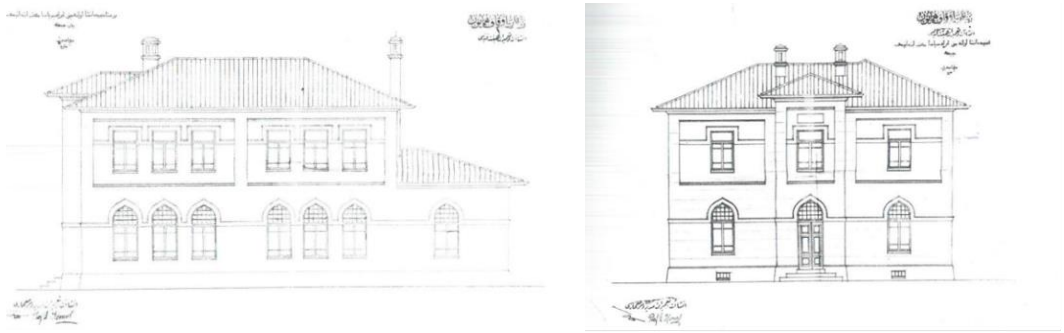


Figure 7. *a) İbrahim Paşa Primary school Side Facade, b)İbrahim Paşa Primary school Front Facade [42]*

3.1.3. Göztepe Primary School

The building located in Göztepe, Istanbul has a rectangular plan scheme [58]. There are spaces such as coal sheds and warehouses in the basement [17;42]. In the original project, it is distinguished from other educational buildings by the open terrace section on the first floor. This part was closed structurally during the repairs in the building in the following years [59].

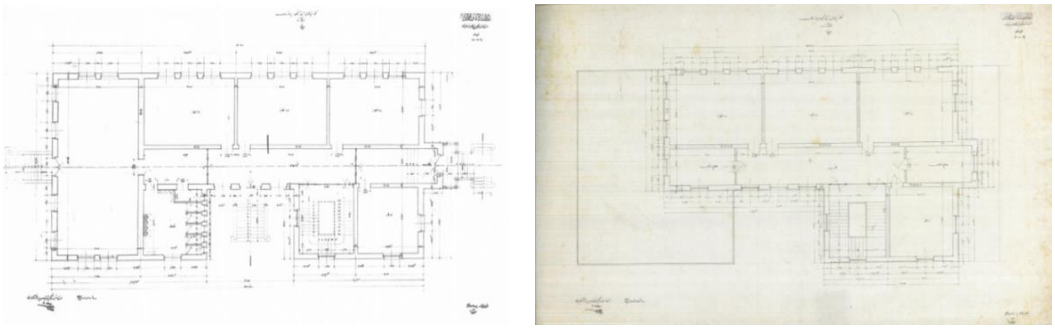


Figure 8. *a)Göztepe Primary School Ground Floor Plan [42], b)Göztepe Primary School Second Floor Plan [51]*

Göztepe Primary School differs from other educational buildings of the architect in terms of its religious space function. When compared to Bostancı, Ayazma and schools with similar features, it is seen that these buildings are located near masjids or mosques [42]. In Reşadiye school, the masjid was dissolved into the structure. However, it is estimated that there is no place with a religious function in Göztepe Primary School.

There are two more entrances in the building besides the main entrance. According to Yavuz, it is thought that the entrance on the left side of the building is for the dining hall. This entry was removed in later years. It is provided with a staircase entrance [60]. Although horizontal jointed plaster application is seen in the project, it is thought that it was not applied during construction or was removed after the repair. In the original project, buttresses supporting the eaves are seen. It shows similar features to the Bostancı School Primary School with its cantilevered and symmetrical facade layout [42;59]. The wooden hipped roof has wide eaves and is covered with tile covering. It was built using brick material using the masonry construction system[60].

Figure 9. *a)Göztepe Primary School Side Facade, b)Göztepe Primary School Front Facade [42]*

3.2. Madrasah Buildings

Known madrasah buildings of the architect; Fethiye Madrasah, Hasanzade Madrasah, Medrese-tül Kuzat, Sultan Abdülhamid-i Evvel Madrasah, Madrasah in Medina, Vani Efendi Madrasah [43;51]. While traces of the old-style madrasah plan can be seen in the Fethiye Madrasa, one of Kemaleddin's madrasah designs, dated to 1909, other madrasah structures were designed in accordance with the new system [42;59]. Madrasa-tül Kuzat and Sultan Abdülhamid-i Evvel Madrasa structures also appear as introverted structures, unlike the Classical Ottoman madrasah typology [61].

With a T-shaped plan scheme for Hasanzade Madrasa, it can be seen that Kemaleddin is outside the understanding of symmetrical plan fiction. A T-type plan may have been considered because it was built on the foundations of the Old Madrasa, which was previously located here and was destroyed [42]. It is noteworthy that the facade structure has similar features to other educational buildings.

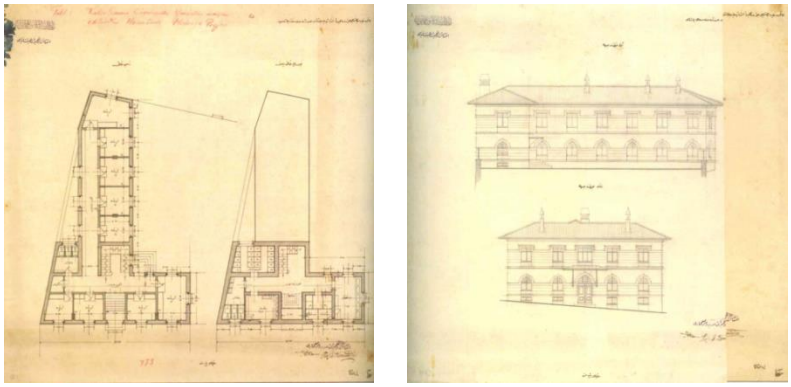


Figure 10. *a)Hasanzade Madrasa Basement and Ground Floor Plan, b) Hasanzade Madrasa Facades[51]*

3.2.1. Sultan Abdülhamid-i Evvel Madrasa

It is possible to say that the building built in Istanbul in 1915 represents a different and innovative approach from the Classical madrasah typology [43;51]. The building was designed and built as an L-shaped structure. After a repair in the 1950s, an addition was made to the building and a short mass was added to the side arm, and it had a U-shaped plan. Circulation is provided by two staircases rising in the form of an octagonal projecting corner tower [18]. Service spaces such as toilets and laundry rooms were designed in the basement floor plan of the building, which provides a staircase entrance from the central axis [42;43].

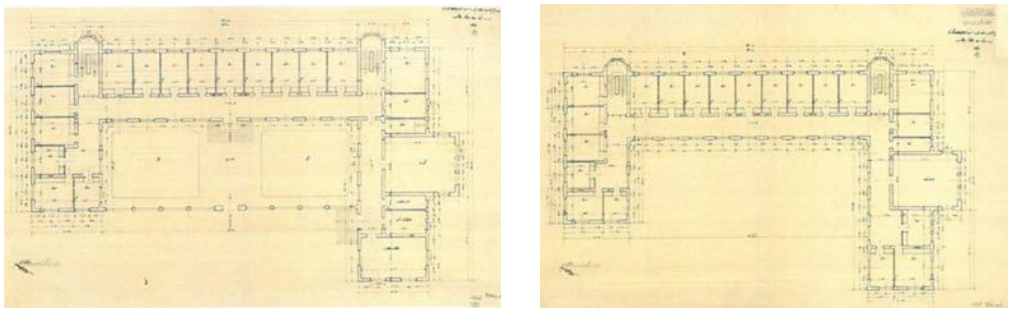


Figure 11. *a) Ground Floor Plan of Hamid-i Evvel Madrasa in Sultan Selim, b) First Floor Plan of Hamid-i Evvel Madrasa in Sultan Selim[51]*

The long side wing seen on the right side of the Ground Floor was designed as a library. The section protruding from the center of the facade was designed as a library on the ground floor and a prayer room on the upper floor [42;51]. The masjid section was extended over the eaves and pendant arched light windows were placed. While triple windows were used on this side facade, equally spaced window spaces were created on the other facades of the building [18;42].

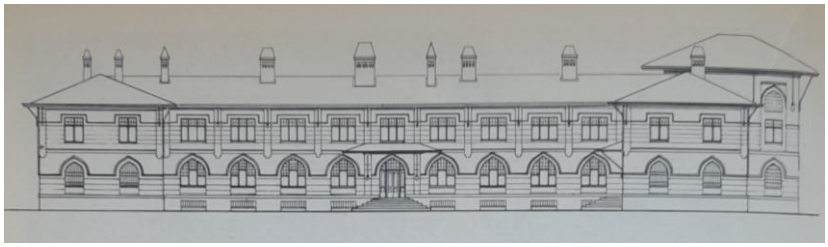


Figure 12. *a)Front Facade of Hamid-i Evvel Madrasa in Sultan Selim[31]*

In the facade layout, the ground floor window arrangement is pendant arched, and on the upper floor there are windows close to square in form with flat scarf arches. There are continuous moldings on the windows. Plasters located between the upper floor windows and continuing to sag in the floor molding were used. There are carved rosettes at the ends hanging from the end of the floor molding to the lower floor [18;42]. There are colorful Rumi motif decorations surrounded by rectangular panels on the eaves above the entrance door. It is covered with a tiled wooden hipped roof. Wide eaves are supported by iron buttresses. It was built using brick material using the masonry construction system [17;18;42].

3.2.2. Medreset-ül Kuzat

The building, completed in 1913, was designed for kadis to receive education as a result of developments in the religious and educational fields [62]. Medreset-ül Kuzat symbolizes the change in education in madrasahs and modern education [61]. The basement of the building, where the U-shaped scheme is applied, is reserved for the warehouse and heat center. On the ground floor, there is a dining hall in a mass that is shorter than the other. There are also classrooms and administrator rooms on the first floor [18;42].

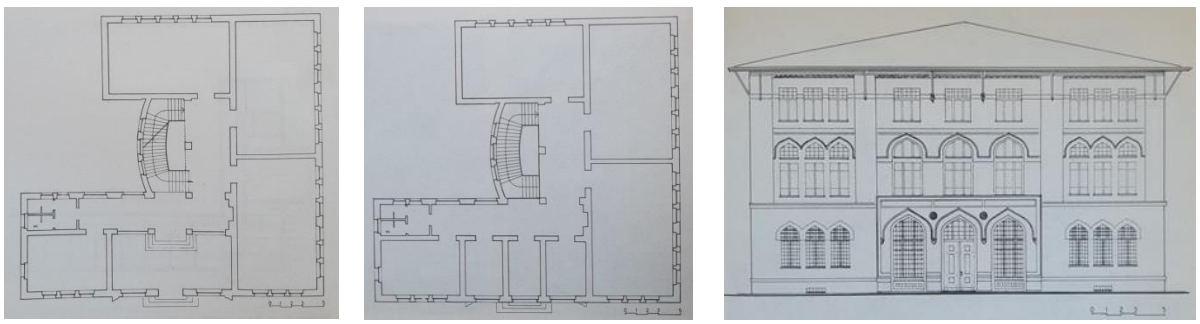


Figure 13. *a)Medreset-ül Kuzat Ground Floor Plan, b)Medreset-ül Kuzat First Floor Plan c)Front Facade of Medreset-ül Kuzat [31]*

Penci arched triple windows were used on the ground floor. The front facade attracts attention compared to other facades. There are penci-arched windows on both sides of the double-winged penci-arched entrance door. Molding on doors and windows continues. There is a reverse tassel at the intersection of these moldings. There is a round badge and an inscription above the entrance. In the drawing, it can be seen that there is relief under the end of the eaves and in the part above the windows. The inscription above the entrance is projected upwards along the entrance door and the windows on both sides [18;42;63]. Starting from the upper part of the basement windows, the stone belt continues throughout the building. It was built with four floors using brick material. Cut stone-like plaster was applied on the exterior.

3.3. Higher Education Institution Buildings

There are two higher education institutions known to have been signed by Kemaleddin. One of them is Gazi Education Institute and the other is Gedikpaşa Engineer School. The plan scheme of Gedikpaşa Engineering School, which has not been implemented, differs with its entrance and Bursa arch-shaped windows on its facade. We can say that the architect designed this type of building with a different approach than the typological features seen in school designs [42;64].

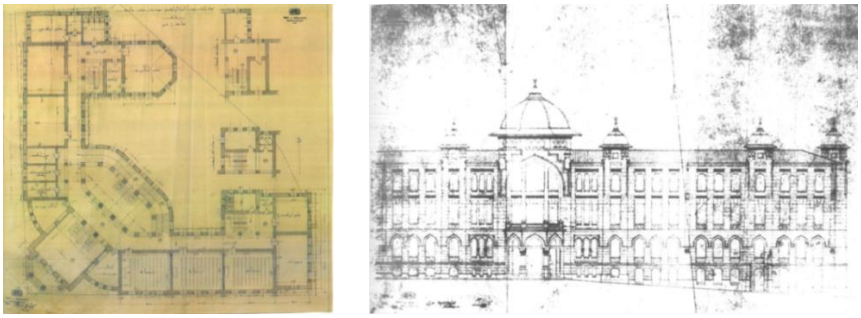


Figure 14. *a)Gedikpaşa Engineer School Ground Floor Plan [51], b)Gedikpaşa Engineer School Facade [42]*

3.3.1. Gazi Education Institute

With the proclamation of the Republic, it emerged as an important structure in modernizing the institutions in the country according to contemporary conditions. The building, designed as “Gazi İlk Muallim Mektebi”, was built to meet the need to train teachers [65].

There is a staircase entrance to the building, which has a symmetrical plan. While there are classrooms, meeting hall, dining hall and laboratories on the ground floor, administrative units, workshops, classrooms and laboratories are planned on the first floor. The second and third floors are reserved for dormitories. Another floor was added in the section above the entrance. Although this area, covered with a dome, was designed as an observatory, it could not be used for this purpose because it did not have the necessary equipment[42;65]. On the basement floor, there are service areas where the heating center and wet areas are located.

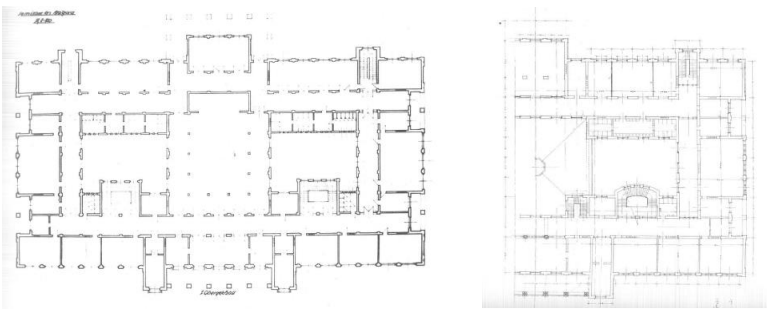


Figure 15. *a)Gazi Education Institute First Floor Plan, b)Gazi Education Institute Third Floor Plan (half of the floor plan) [42]*

In the facade setup, there is a semi-open area with a portico with marble columns rising on two floors in front of the entrance. The part corresponding to the portico at the entrance in the upper floor plan layout was used as a closed balcony on the second floor. The corresponding part of this balcony with red marble columns in the upper floor plan was used as an open terrace on the third floor. The building differs from other educational buildings in terms of the application of reinforced concrete construction technique [66]. Gazi Education Institute will contribute to seeing the differences in the design approach applied before and after the Republic period. This building is important as it is the last structure of Kemaleddin before his final death. The design process of the building, which was completed in 1927, was a very stressful process for Kemaleddin. German Architect Egli was brought to Ankara with the thought that it did not reflect the modern understanding of the period, and the architectural forms used caused criticism. The construction of the building was completed after the death of Architect Kemaleddin and started to be used in 1930 [65;66;67].

Figure 16. *a) Gazi Education Institute [68], b) Gazi Education Institute Side Facade (by author)*

4. EVALUATIONS ON ARCHITECT KEMALEDDIN'S EDUCATIONAL BUILDINGS

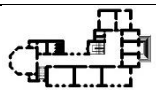
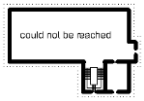
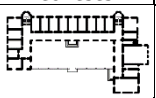
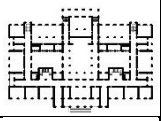
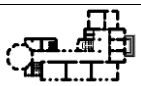
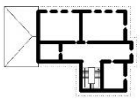
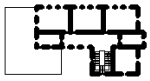
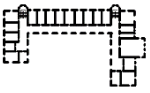
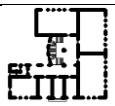
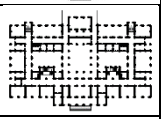
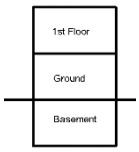
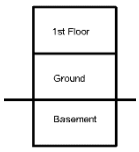
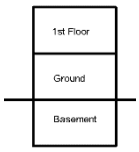
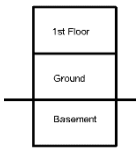
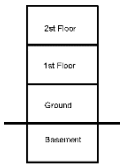
In plan fictions, it is seen that buildings differ according to user needs, location and education system. It is possible to say that it generally adopts symmetrical and functional plan solutions. L, U and Rectangular shaped plan types were frequently used.

Unlike the courtyard and portico plan typology seen in the classical plan typology of madrasahs, a plan structure is seen in which classrooms are arranged around corridors and wet areas are mostly solved in the interior. It is observed that the sizes of private teaching institutions in classical period madrasahs changed in parallel with the importance and size of the madrasah [61]. Similar to this understanding, the fact that the masjid section of the Sultan Abdülhamid-i Evvel Madrasa is higher than the other parts of the building suggests that this is due to the importance given to this place.

When looking at the space organization in educational buildings, service areas such as heating center, toilet, warehouse and laundry are generally located in the basement floor. It can be said that classrooms are located on the ground floor, and administrative units are generally located on the upper floors. They contain side-function spaces such as dining halls and meeting rooms.

Frequent use of staircased entrances not only helps solve the lighting and ventilation problems of the basements of buildings, but also highlights the entrances and gives them a monumental appearance. Protrusions that refer to the Turkish house have become a frequently used design element and are mostly used to emphasize the entrance. In addition to protrusion, applications in which the mass retracts are also seen. At Gazi Education Institute, the mass was withdrawn and used as a covered terrace. In the original project of Göztepe Primary School, a similar structure is seen as an open terrace. In the original project of Bostancı Primary School, the mass on the upper floor was withdrawn.

Table 1. *Plan Features Table*

Plan Features							
Functions of Structures		**Primary Schools**			**Madrasa**		**Higher Education Institution**
Names of Structures		**Reşadiye Primary School**	**Bostancı Primary School**	**Göztepe Primary School**	**Sultan Abdulhamid-i Evvel Medresesi**	**Medresetül Kuzat**	**Gazi Education Institute**
Floor plans	**Zemin Kat**						
	1.Kat						
plan forms	**U formed**						
	L formed						
	Rectangle						
Number of Floors							

In terms of door shapes, rectangular, flat arched and penci arched door forms were used. Among the structures examined, the rectangular-shaped gatehouse is seen only in the Gazi Education Institute.

Table 2. *Door Specifications Table*

Door Features								
			Primary Schools			**Madrasa**		**Higher Education Institution**
No	**Draw.**	**Descript.**	**Reşadiye Primary School**	**Bostancı Primary School**	**Göztepe Primary School**	**Sultan Abdulhamid-i Evvel Medresesi**	**Medreset ül Kuzat**	**Gazi Education Institute**
1		**Rectangle form**						+
2		**Penci arched form**		+	+	+	+	
3		**Flat-arched form**	+		+	+		

In window setup, the use of different types of windows on the ground floor and first floor is a common feature of educational buildings. The use of twin and triple windows is seen. The frequent use of rectangular and pentacle arched windows is one of the most characteristic features of educational buildings. Square shaped windows are found in Gazi Education Institute and Sultan Abdulhamid-i Evvel Madrasa. The use of twin and triple windows is also seen.

Table 3. *Window Features Table*

Window Features								
			Primary Schools			Madrasa		Higher Education Institution
No	Draw.	Descript.	Reşadiye Primary School	Bostancı Primary School	Göztepe Primary School	Sultan Abdulhamid-i Evvel Medresesi	Medreset ül Kuzat	Gazi Education Institute
1		Rectangle form	+	+	+	+	+	+
2		Pointed arch form						+
3		Penci arched form	+	+	+	+	+	
4		Square form				+		+
5		Basement window			+	+	+	+
6		Twin window	+		+			
7		Triplet window	+		+	+	+	

Roof features, it is seen that the roofs of the educational buildings evaluated have wide eaves resembling a Turkish house. The wooden hipped roof is covered with tile cover. In addition, there are examples where the dome is used. Unlike the dome of the Gazi Education Institute, which was designed as an observatory, an onion-shaped dome was used in Reşadiye School. It is seen that the cantilevers that emphasize the entrance in Bostancı, Göztepe and Reşadiye Schools also extend upwards on the facade. At the Gazi Education Institute, there is also a massive overflow on the entrance and rear facades. Iron buttresses supporting wide eaves were used in the original projects of Göztepe, Sultan Abdulhamid-i Evvel Madrasa and Medresetül Kuzat buildings.

Table 4. *Roof Specifications Table*

Roof Features								
			Primary Schools			Madrasa		Higher Education Institution
No	Draw.	Descript.	Reşadiye Primary School	Bostancı Primary School	Göztepe Primary School	Sultan Abdulhamid-i Evvel Medresesi	Medreset ül Kuzat	Gazi Education Institute
1		Wide eaves	+	+	+	+	+	+
2		Dome	+					+
3		Corner Tower				+		
4		Upper	+	+	+	+		+
5		Buttress			+	+	+	

From its ornamental features, it is noteworthy that there is a concern for form on the facades. It shows the characteristics of the First National Architecture period with its window and door types with continuous moldings, porticoes, rosettes, Rumi decorations and reliefs. It is noteworthy that the panels that divide the facade vertically are frequently used in the first floor facade setup. The floor molding element that divides the facade horizontally is frequently used. In buildings other than the Gazi Education Institute, the moldings on the windows were characteristic features that emphasized the facade structure. In addition, the star and crescent motif on the upper part of the low arched door in Bostancı İbrahim Paşa Primary School has an imaginary meaning [69].

Table 5. *Decoration and Facade Features Table*

Decoration and Facade Features								
			Primary Schools			**Madrasa**		**Higher Education Institution**
No	**Draw.**	**Descript.**	**Reşadiye Primary School**	**Bostancı Primary School**	**Göztepe Primary School**	**Sultan Abdulhamid-i Evvel Medresesi**	**Medreset ül Kuzat**	**Gazi Education Institute**
1		**Belt Course**	+	+	+	+	+	
2		**Panel**	+	+	+	+	+	+
3		**Window Sill**	+	+	+	+	+	
4		**Rosette**				+	+	
5		**Inverted drop**				+	+	
6		**Floral ornamentation**				+		+
7		**Terrace**			+			+
8		**Staircase entrance**	+	+	+	+	+	+
9		**Arcade**						+

As a result of the evaluations, it is seen that in the educational buildings built by Architect Kemaleddi, the plan structures also changed as the model of the education system changed. However, Architect Kemaleddi used architectural forms and elements belonging to the National School of Architecture on the facades of his buildings with two educational models.

5. CONCLUSION

II in the Ottoman Empire. Many buildings were designed in the National Architecture style, which started during the Constitutional Monarchy period and to ensure national unity in Turkish Architecture. In this period, Architect Kemaleddin has an important place as the pioneers of this style. Architect Kemaleddin Bey created educational buildings that constitute a large part of his work, especially during the years he worked at the Ministry of Foundations. Architect Kemaleddin worked as an architect in an environment where Neo-Classical examples were seen in Europe under the influence of Nationalism, where there were many new design questions and there was concern about establishing a new style. He contributed to the

design of many educational buildings in these years when the architect education program changed and modernized. It has been observed that the plans in educational buildings are mostly designed as introverted structures. The possibility that changes in the madrasah education program may be effective in the occurrence of this situation in madrasah structures should be taken into consideration. A rational setup has been adopted, including side-functional spaces such as meeting rooms.

Symmetrical fiction, which is frequently seen in plan layout, is also considered important for the facade layout. The entrance to educational buildings is generally provided from the middle symmetrical axis, but there are also examples of projects with side entrance, as in Göztepe Primary School, or from the corner, as in Gedikpaşa. It is seen that the facade design is designed in vertical and horizontal parts and a rhythmic order is often included. Particularly the use of molded penci-arch windows, floor moldings continuing throughout the building, wide eaves roof form and overhangs that generally emphasize the entrance are the characteristic features of the facade structures. Generally, the front facade of the buildings is more decorated than the other facades and emphasizes the cantilevered building entrance created in the middle section. Pointed and flat arched windows were frequently used on the facades of educational buildings. Window forms differ between the ground floor and upper floors. Roofs generally have wide eaves and are covered with tiles, as in Turkish houses. The staircase and central entrances, marble columns, and symmetrical layouts in the facade layout can be seen as traces of the architect's western-based academic background. Arched window and door forms, the use of domes and wide eaves covering systems, and the inclusion of ornamental elements are elements that reflect the intricacies of Turkish art.

When the structures examined are evaluated within the historical process, the Reşadiye School, İbrahim Paşa Primary School, Göztepe Primary School, Sultan Abdülhamid-i Evvel Madrasa were built in the last periods of the Ottoman Empire. These structures were built using masonry construction system using brick material. In the following years, Gazi Education Institute, built in 1927, was built of reinforced concrete. In addition, Gazi Education Institute, unlike the other buildings evaluated, has stone cladding on its exterior. It is seen that different construction technologies were used throughout the historical process.
As a result, in line with the evaluations made, it is seen that there are differences in the plans of educational buildings such as School, Institute and Madrasa designed by Architect Kemaleddin in line with the needs of the period. However, it is seen that these buildings were designed with similar facade layouts, with traces and influences of the 1st National School of Architecture. In this context, it can be deduced that the influence of the 1st national architectural movement was more effective in the facade constructions of Mimar Kemaleddin's buildings, and that he designed the spaces with a modern approach in the plan constructions. It can be thought that when Architect Kemaleddin needed to design a building with a very different function, the plan layout would change according to the need, but the facade layout would be designed with a similar facade setup from the National architectural school.

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