

# Spatial evaluation of primary sugar factories in early republican period in Turkey

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## Abstract

During the early republican period of Turkey, new industrial complexes were emerged through modernity project and modern architecture. One of this industrial complexes were the sugar factories with their production and residential buildings, which were particularly significant, both as quintessential modern buildings and as built manifestations of modernity project in Turkey. This study is focused on the architectural findings of the primary sugar factories built in early republican period in Turkey. As a case study, the primary/main four sugar factories, which were established at the first ten years of Republic; Alpullu, Uşak, Eskişehir and Turhal factories were selected. These factories have been the subject of limited studies separately so far. Therefore the present study investigates the role of primary sugar factories in the industrialization period, as a new architectural planning reflecting industrial city idea of modernism and their effects on the community of the cities. The research methods include field study procedures to identify and analyze them, with their site complexes, building materials and architectural elements that characterize the continuity of settlement identity. As a result, primary sugar factories in Turkey have characteristically simple form, small, variable in squares and well-designed buildings and their architectural complexes actually serve as symbols of social and cultural identities of their time.

## Keywords

Early republican period, Eskişehir Sugar Factory, Industrial buildings, Sugar factories, Uşak Sugar Factory.



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## 1. Introduction

*"Each factories are unique castle"*

Mustafa Kemal Atatürk<sup>1</sup>

"It is called that after First World War, the world was divided into three parts. The defeated, the vanquished and Russia" (Armaoğlu, 1975). Although Turkey was on vanquished part, its recovery efforts has in progress as soon as the war has finished. Along with the heavy economic burdens of the war, new government put into practice many innovative revolutions in many areas, especially for the economic field which has brought an original approach to the industry. As Tekeli (1998) states the government has taken three important goals, first one is the declare of Ankara as a capital city, second one is the construction of country with iron connections (railways) and the last one is to establish new-fangled industrial areas all over the Anatolian cities.

During this period, construction of industrial buildings which is the subject of this paper has formed not only a new physical environment in many cities around the country but also an imagined community. This edifice has shown itself with the concept of the term of modernity project which were effective in periods of social life and administrative management. While modernity project includes versatile and different components, industrial appliances has gained more importance as well as social, cultural and political fields (İmamoğlu, 2006:53). Even more, industrial structures established in the first years of the Republic were not only product of modernity project process, but the central component of this database confidently.

In the case of industrialization period of Turkish Republic, this process imposes upon the formation of industrial buildings such as "sugar factories", insofar as urban images reflect and the shared narrative of imagined communities. In this sense, one of the most important early republican industrial complexes as being sugar factories established in the mentioned period by new government, provide an interesting urban settlement with all of its architectural/urban designs in rural parts of Anatolia.

As a case study, the primary/main four sugar factories in these rural parts, which were established at the first ten years of Republic; Alpullu, Uşak, Eskişehir and Turhal factories were selected. These factories have been the subject of limited studies separately so far. Therefore the present study investigates the role of primary sugar factories in the industrialization period, as a new architectural planning reflecting industrial city idea of modernism and their effects on the community of the cities. The research methods include field study procedures to identify and analyze them, also the building materials and architectural elements that characterize the continuity of settlement identity. Not only their common aspects such as, proximity to the railway lines, water and beat cultivation areas were considered but also site plans, locations, architectural expressions of them were analyzed separately. Besides them, each factories with their unique architectural designs and site plans were identified and reported. Their sites include not only factory buildings but also social, educational, recreational spaces and residential dwellings for employees and their family. However, despite the lively neighborhoods around them in 1930's, their site is currently in the process of abandonment to their fate due to the closure of factory operations during 2000's.

Moreover, modern expression of factories as a significant factor that shape the identity of regions is discussed. It was the first large-scale mobilization of architecture for identity construction, which accommodate modern functions for the imagined communities and also the first systematic engagement of Turkish public and architects with new building types, construction techniques and design principles.

## 2. Industrialization period of early republican era

The Industrialization of modern Turkey is a critical yet often neglected episode in the history of 20<sup>th</sup> century urbanism. While the evaluation and development of this program is an important milestone for the establishment of new Turkey. During 1923-1926 years, there was almost no econom-

<sup>1</sup>"Her fabrika bir kaledir" is an aphorism of Atatürk.

ic existence due to the results of First World War and War of Independence in Turkey. However, with the tangible effect of innovative decisions of Republic, development on agriculture production was grounded rapidly (Batur, 2005:5). Domestic production which is scheduled abundant raw materials such as “three white” (flavor, sugar and cotton), had been top prominence. On the other hand, the sugar industry had been important because it should have developed both industry and agriculture at the same time. For this reason it was preferred in developing countries like Turkey (Bancı, 2006: 36).

After all, the economical conjuncture of that time was based on nationalism and new arrangements were constituted to form a national integration and economic independence in production sector in 1924. The arrangements and preventions which were taken to develop industry have been underlined at Izmir Congress of Economy and soon after the congress Industrial Encouragement Law and Bank of Industry were established (Keskinok, 2010: 174).

Even more strikingly, Asiliskender (2009) also points to the importance of industrialization in early republican era closely. After the proclamation of Republic, the state has taken a leading role in the industrialization movement particularly. As the continuity of political revolutions, industrial investment has been approached as a sine qua non to achieve economic and social development goals for modernization project. The state has not only established factories at various points in Anatolia but also stimulated the economy, by interpreting them as a part of this project. These new settlements were an example of spatial and social environment of the revolution which desired to be established. So, new urban models were produced with regard to their factory schools with cooperative housing, hospital, health, culture and social spaces including sports fields. In this regard, in the Early Republican era architecture movement, industrialization has a special significance (Asiliskender, 2009:154).

Therefore, a comprehensive industrialization program was developed for

countryside especially in rural areas. One of the first attempts of national production and the most significant spatial strategy was the establishment of sugar factories (Veldet, 1958:3). In other words, quintessentially republican industrial spaces for the display of industrial and economic progress in a modernist architectural setting this time in an economically prosperous, historically significant Anatolian cities. These factories were thought not only for sugar production, but also as an area of education, research and development for the individuals. In this context, Bozdoğan (2001) states that these factories were such important, both as modern buildings and built manifestations of republican success in catching up with modern civilization (Bozdoğan, 2001:124). So these industrial complexes were considered as a social project and were built as a settlement that include units such as lodgings, guest houses, movies, theaters, restaurants, sports fields, primary schools, agricultural farms and etc.

As a matter of fact, it was the unique case of the Republic to form industrialized cities because of their reflection on architectural designs and community. Since they were designed as an integrated complex to provide the formation of “new farmer”, “new engineer”, “new worker” and “new citizen”.

So, in this study, Sugar factories were covered not only in the single structure but also in industrial areas, housing, mechanical units, cinema, casino and recreation areas, covering the periphery of buildings. For this purpose, the social life in the industrial complexes including the history of socio-economic activity and living spaces such as production processes, usage systems (dwellings, cinema, schools and recreation areas) are also examined.

In fact, during the industrialization period of England and Germany, modernist principles such as rationalism, functionalism and simplicity approaches which were gathered in those countries, come across with the ideas of new Republic in Turkey (Bozdoğan, 2001). These ideas were also the main ideas for the establishment of sugar factories. Indeed, these sugar factories have the aim of providing better living

conditions for its workers, administrators and employees. They are thought of as settlements where families can live for a long time. Their residents explain it well, because one of this long term residents of factory tells these words;

*“Sugar factories were home, heart, homeland for us. We know nowhere except there. We do not need to know. Because there were all facilities and social service areas such as schools, kindergartens, shopping markets, cinemas, swimming pools, mosque, restaurants, sport areas, camps and farms. We have grown up in duplex villas which has hot water every time.”* (Tanriverdi, 2015)

When we talk about the architectural discourse of factories we see a common sense of Modernism traces. The explanation of modern movement by Hubert-Jan Henket (1996) exemplifies the architecture of sugar factories in somehow. He says;

*“The Industrial Revolution had changed the society at the turn of the century, social and technical. Apart from the changing concept of time, the building also demonstrates the increasing tendency to experiment and innovate in social technical and aesthetic matters. For many architects the modern movement was not so much an aesthetic principle or a style, but rather a method of working, a way of thinking about people and their environment. These buildings should primarily be constructed as a utility. They were to be designed as economically as possible and should express the openness, transparency and accountability of the new culture, they should fulfil the ambitions of the emancipating masses, be hygienic and healthy, and they should be produced and assembled as efficiently as possible, making use of as little material as possible by employing the latest technological innovations.”* (Henket, 1996:23).

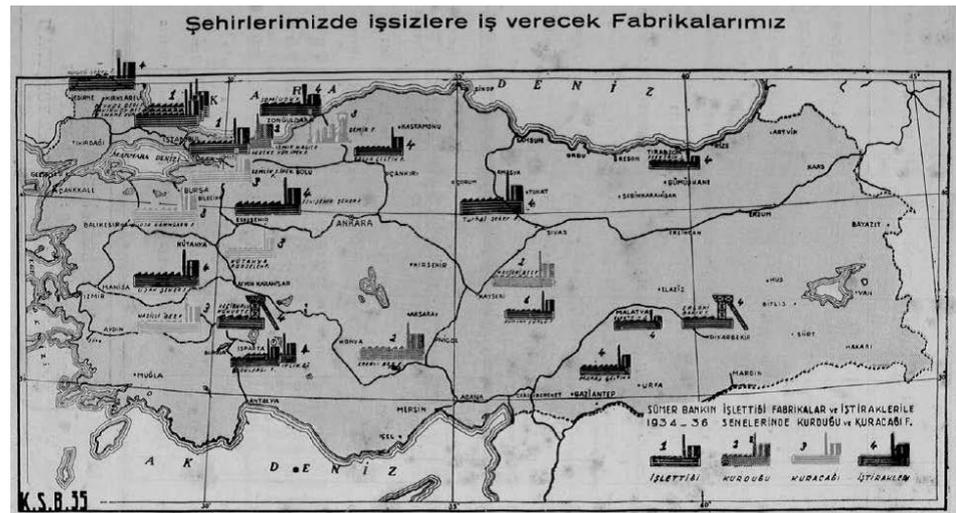
### 3. The establishment of sugar factories

The first attempts in order to establish sugar factories has been put into effect in Ottoman Empire period between 1840-1899 years. However, none of these undertakings have been put into practice and have not been able to go forward (Veldet, 1958: 9).

But during republican period, the first serious attempts in this direction was initiated by a farmer named Nuri (Şeker), Molla Ömeroğlu from Uşak. By the participation of many willingly local people, “Uşak Progressive Agriculture T.A.C” (“Uşak Terakki Ziraat T.A.Ş.”) was established in Uşak, with a capital of 600.000 TL in 19<sup>th</sup> April 1923. On 6<sup>th</sup> November 1925 the foundation of the first sugar factory was laid and the factory was opened at 17<sup>th</sup> December 1926. In the same year, while Uşak sugar factory was being constructed, “Istanbul and Trakya Şeker Fabrikaları T.A.Ş.” which had a capital of 500.000 TL with the participation of private individuals and some national banks began to build in 14<sup>th</sup> June 1925. It was Alpullu sugar factory which were founded and the its’ assembly completed in eleven months and were opened on 26<sup>th</sup> November 1926 and the first Turkish sugar was produced (url 1).

Later, On 8<sup>th</sup> of April 1925 day and 601 numbered “Privilege and Exemption Law on Sugar Factories” has been put into effect, aiming to direct private sector to industrial investments. Fortunately, the private sector has provided considerable opportunities by this law; such as;

- In the regions where Ministry of Trade determined, they have the right to establish and operate sugar factories for 25 years and it was granted, in order to cover not only the five provinces of neighboring provinces but also the area of a large enough size for the continuous growth of sugar beet to meet the region’s need.
- Produce tax will not be taken for 8 years from the sugar produced, beet cultivation areas will be immunized from the land tax provided that the beet that is produced would be sold to sugar factories.
- The plants will be allocated 1-5 hectares from the treasury land free of charge, the raw materials coming from the factory or produced products will be transported at a discount rate of 1/3 of the public vehicles, Dividend tax would not be taken.
- People and organizations wish-



**Figure 1.** New factories in Turkey which will provide new working areas (Source: *Belediyeler Journal*, 1935, *Kanunievvel 1935M*, year.1 no.7-12, p.96).

ing to benefit from this ban alone would have to prove that it was the capital and staff that could build and operate sugar factories (Veldet, 1958: 69-70).

Until 1933, the sugar requirement of our country was partially covered by the production of these two factories. Since these two factories have gained considerable experience in sugar beet farming and the operation of sugar factories, it has been deemed necessary to establish new sugar factories.

For this reason, two more factories were established. One is Eskişehir factory which was formed with the partnership of national banks and "Anatolian Sugar Factories T.A.C." (Anadolu Şeker Fabrikaları T.A.Ş.)" at 5<sup>th</sup> December 1933 and the other one is "Turhal Sugar Factory T.A.Ş." which has been started to operate in 19<sup>th</sup> October 1934.

However in 1930's, Turkey sugar industry was suffering by the effects of economic crisis in the world and limited possibilities of private sector. Therefore, Economical Ministry had formed a "Sugar Rationalism Committee" that was commissioned to solve this problem. Due to the proposal of this committee on 6<sup>th</sup> July 1935, Turkey Sugar Factories Joint Stock Company, (Türkiye Şeker Fabrikaları A.Ş) was established with an equal share of Sumerbank, Turkey İş Bank and T.C. Ziraat Bank. So, four primary-existing factories (Alpullu, Uşak, Eskişehir and Turhal) were combined under one company duty in order to provide more

rational operation possibilities like the other factories built in 1930's (Veldet, 1958) (Figure 1).

However the construction period of these factories and their complexes differ from each other. In 19<sup>th</sup> century, designing/building of factories had been ordered by foreign architects and engineers in Ottoman Turkey<sup>2</sup>. At republican period, this practice is extended and systematized (Bozdoğan, 2001, 124), so during the first decade of the republican period, some European based companies were ordered to set up of the machines and architecture of industrial complexes. From this point, Alpullu, Eskişehir and Turhal factories were ordered by the same German-based "Maschinenfabrik Buckau R. Wolf Company" while Uşak is ordered by "Czechoslovak Skoda Company" which will be told in separately topics in next part.

"Maschinenfabrik Buckau" company has been established to build steam engines, excavator, conveying systems for German coal and mining industries in 1838 when the industrialization began in the early 20<sup>th</sup> century in Germany. In 1928, it is merged with founder of the engineering works of Magdeburg named as R. Wolf and formed well-known "Maschinenfabrik Buckau R. Wolf AG". (url 2). One of their design is "steam engines" in Buckau Machinery Factory in Magdeburg in 1935 which has been preserved and changed to "Technical Museum of Magdeburg" in 1994 (url 3).

<sup>2</sup>A Pioneer in the use of reinforced concrete mushroom columns, British architect-engineer Sir Owen Williams designed a cotton-crushing mill in Adana in 1926 and prominent French modernist architect, Rob Mallet-Stevens designed a distillery in İstanbul in 1930. (Bozdoğan, 2001, 124)

### 3.1. Alpullu Sugar Factory

While Uşak Sugar factory was establishing, private individuals and “Türkiye İş Bankası, Ziraat Bankası, Trakya İlleri Özel İdareleri” banks participated and created “İstanbul ve Trakya Şeker Fabrikaları Türk Anonim Şirketi” with a capital of 500.000 liras. This company established the Alpullu Sugar Factory which produced the first sugar in Turkey on 26<sup>th</sup> November 1926. In eleven months’ time the construction has finished before Uşak sugar factory that were ordered to German-based Maschinenfabrik Buckau R. Wolf Company (Alpullu Sugar Factory Archive, 2015) whom have the responsibility for setting up of the machines and architecture as well.

As a matter of fact, Alpullu Sugar Factory which is mainly producing sugar, did not only help the people to meet the sugar needs in the whole country but also contributed to the modernization of Thrace region with its spatial characteristics. This settlement; both in terms of architecture and space qualities as well as in the context of bringing these places together in the urban planning system, consists of modern and simple buildings as the first examples of modern architectural constructions (Figure 2).

The factory was located near to Ergene River and Alpullu train station which connects Istanbul, Edirne Babaeski and Kırklareli lines. The boundary is limited on the south, Ergene River and the west, Alpullu River. The water-slam and pulp pools are located on the edge of the river. The main factory, turbine-boiler-lime circles, beet-coal-coke and limestone silos, where the entrance of sugar beet was made, were dissolved near the train station. As a general settlement principle, a highly functional solution is perceived. The introduction of the hammer, the processing and subsequent shipping of the product is designed to be as rational as possible to send it to various places. Thus, spatial fiction is formed by the use of buildings and the production buildings were completed with steel construction with brick filled.

In addition to the buildings and related units in the factory, there are



*Figure 2. Alpullu Sugar Factory in 1930's (Alpullu Sugar Factory Archive, 2015).*



*Figure 3. Alpullu Sugar Factory worker's houses, 2015 (writer archive, 2015).*



*Figure 4. Worker's houses in 1930's (Alpullu Sugar Factory Archive, 2015).*

important places that support social transformation through industrialization. First of all, workers' residences (Figure 3,4), sports and social facilities were built in the factory settlement such as; cinema and restaurant, hospital, infirmary, pharmacy store, sales shop, school, mosque, dormitory and bath. There is also a guest house, “Ergene Pavilion” which is hosted by the elders of the state, and the “Great Pavilion” where the ceremonies are held.

Sports facilities include; a stadium, basketball-football field, swimming



**Figure 5.** Uşak Sugar Factory beet silos (Alpullu Sugar Factory Archive, 2015).



**Figure 6.** Uşak Sugar Factory worker houses (Veldet, 1958:211).



**Figure 7.** Guest house in Uşak Factory (Veldet, 1956: 212).

pool and a mini golf course. The mini golf course in the factory complex is important because it is the first mini golf course in Turkey. What is striking that all these sports activities are effective in transforming the Turkish peasant, who is foreign to them, into an industrial worker.

On 20<sup>th</sup> December 1930, Atatürk visited this factory with a great pleasure and pride and wrote these words in the memory book of Alpullu as follows:

*"I visited the Alpullu Sugar Factory. I was very pleased with what I saw. I wish the establishment to be more expansive and more successful than it is now. The proliferation of sugar factories in every possible region of our country and the*

*necessity of the sugar need of the country in this way must be recognized among our important goals.*" Gazi Mustafa Kemal (Alpullu Sugar Factory Archive, 2015).

### 3.2. Uşak Sugar Factory

The first attempts for establishing a sugar factory were started by the great efforts of Molla Ömeroğlu Nuri (Şeker), a farmer in Uşak. He himself, private individuals and "Industry and Maadin Bank" have formed the "Uşak Terakki Ziraat Türk Anonim Şirketi" company with a capital of 600.000 TL. This company has the responsibility of construction of the factory and other buildings, obtaining machines and construction materials. But the architectural and construction plans have been ordered to "Czechoslovak Skoda Company", whom they have sent experienced engineers/architects during the construction period. So, the base of the first sugar factory construction has been settled down in Uşak on 6<sup>th</sup> November 1926, and the first production took place on 17<sup>th</sup> December 1926 (Veldet, 1958).

Atay (1926), has written in *Ulus Newspaper*, the inauguration of Uşak Sugar factory enthusiastically with these words; "This factory is a national awakening achievement like the other one (Alpullu Factory)..." (Atay, 1926).

The factory was located near to İzmir-Aydın railway station and to Gediz river. On the north part of the area, main factory services and silos were presented (Figure 5). Agricultural services and workers' houses were on the south part apart from the management area. There were new buildings which the people had seen for the first time like; cinema, infirmary, casino, stadium, two and four storey workers' house and guest house (Figure 6,7).

### 3.3. Eskişehir Sugar Factory

On the medieval times Eskişehir is located at the crossroads of important roads and it was known as Doryleum which was in the middle part of Turkey. Doryleum was an important place because of being rich in agriculture and having the railway connection from Anatolia to Europe (Ertin, 1994).

On the first half of the 20<sup>th</sup> century, because of these suitable conditions for the development of industry, various industrial organizations were built in this fertile city. Sugar Factory was decided to be built on 8<sup>th</sup> December 1932, and iron-construction materials with machines have been ordered to German Institution named as “Maschinen fabrik Buckau R. Molf Aktien Gesellschaft Magdeburg” at the same time. The factory is opened on 5<sup>th</sup> of December 1933, was celebrated with the speeches of President İnönü in the official daily Ulus as;

“..This fabric was established in six months’ time. We have gone under a big test to build such a big factory from its basic.”(Veldet, 1958: 411).

Eskişehir Sugar Factory have a modern architectural traces and recreational significance in another substantially republican city for the display of industrial and economic progress in a modernist architectural setting. Again with other sugar factories (Uşak and Alpullu), economically prosperous, suitable to railway, fertile of agriculturally and watery. It was built for the production of sugar and spirit by the participation of Türkiye İş Bankası (%51), T.C. Ziraat Bankası (%24,5) and Sanayi ve Maden Bankası (Sümerbank) (%25,5) by “Anadolu Şeker Fabrikaları Türk Anonim Şirketi”. ..(Veldet, 1958: 407) (Figure 8, 9)

The factory is totally 3.653.708 metre square, one side of 2.627 metre Porsuk river, 1.510 meter to Eskişehir plane factory and 2745 metre to Eskişehir-Ankara railway and 1.228 metre to Eskişehir city (Veldet, 1958:407). The site plan of Eskişehir sugar Factory presents a functionalist approach by the usage of the buildings. The settlement is located on two sides of Eskişehir-Ankara highway named as Sivrihisar Street when it was built. On the North part of this Street, production buildings, pools (slam and pulp pools), tanks (fuel oil, molasses, gasoline tanks) and oil warehouses are located near to railway. Just cross these reduction places, fabric facilities are present. On the south part of highway social places, administrative buildings, houses for workers, sport areas, school and hospital buildings were established



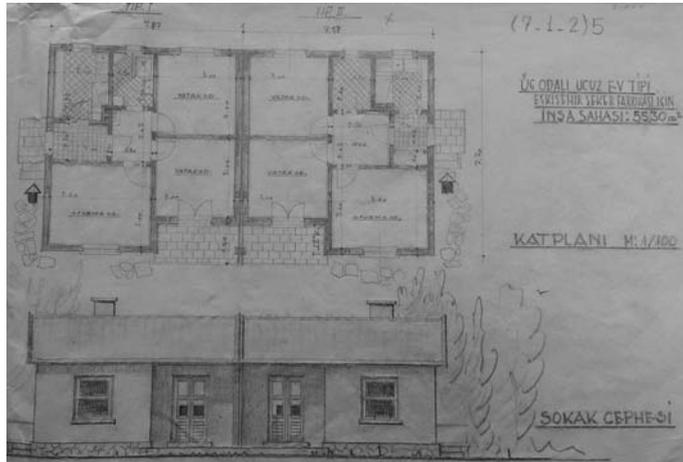
**Figure 8.** The appearance of Eskişehir Sugar Factory from the farm (Alpullu Sugar Factory Archieve, 2015).



**Figure 9.** The general view from Eskişehir Sugar Factory (Alpullu Sugar Factory Archieve, 2015).



**Figure 10.** Eskişehir Factory and office building (Alpullu Sugar Factory Archieve, 2015).



**Figure 11.** The plans of Eskişehir workers’ house (Sugar Factories general directorate, 2014).

in a very vast and green district (Figure 10,11,12,13). Housing for workers are separated with a green area from administrative ones while the beet production farm is near to Porsuk river. The facade of the factory buildings shows a modernist style with its small windows with mansard and lighted roof at the top.



**Figure 12.** Eskişehir sugar factory building (Ece Ceren Önder, 2016).



**Figure 13.** Eskişehir worker's houses (Ece Ceren Önder archive, 2016).

Also, Ayhan (2006), explains the architectural content of this factory, as being made up with new technology and material, functional and rational solutions, plain and geometrical formations as well as the territory decisions. (Ayhan, 2006:89). In fact these approaches are all valid for the other sugar factories also. On the diary of Eskişehir Sugar Factory, the National Socialist Economic Writer has written as follow;

*<sup>4</sup>He designed development plan of an urban extension in Turhal in 1935 also.*

*“..In Germany, industry and science have been encounter with request. However Eskişehir modern sugar factory of Turkey is equal with European ones. Being a German, we thank you for your*

*works and wish you more development for the future. (30/09/1937) Die nationalzialistischen wirtschaftsschriftleiter Dr. Oeltze von Lobentha. (Veldet, 1958: 442).*

The German architect Fritz August Breuhaus designed development plan for this industrial district with sugar refineries, infrastructure and housing estates in 1933. He also designed the villa for managing-director, hospital, staff canteen and administration building (url 4).

### 3.4. Turhal Sugar Factory

Turhal Sugar Factory has been settled down, by Economics deputy Celal Bayar as “Turhal Sugar Factory T.A.C.” on the date of 7th October 1933 with the 3.000.000 tl capital. Half of the capital belongs to “İş Bank” and the other half is “Ziraat Bank”. The production has been started on 19<sup>th</sup> of October 1934 as the fourth sugar factory of Turkey.

The transformation of Turhal city to an industrial city and the establishment of school and hospital of the factory, has been met with enthusiasm by the local people (Veldet,1958: 490). The usage and order of machines of the factory was the same with Eskişehir factory. Turhal sugar factory, like Eskişehir and Alpullu, built by German Buckau R. Wolf Company. There is a Samsun-Sivas main road in the middle of the buildings on site. On the left part of the road, east side; fabric production-storage building, operating building, warehouse building and other buildings related with production are exist. On the right part, west side is, school, hospital, sport clubs and labor houses are located. There are 125 labor houses totally which are built like a rule near each other. (Figure 14,15,16,17,18)

This factory shows architectural similarities with Eskişehir in certain ways. Because both of them were established in close years, the same company were ordered to build both factories and the same architect designed the buildings. Legendary architect Fritz August Breuhaus de Groot designed factory building, administration building, villa for managing-director, housing estate with hospital and sports field and school in 1934<sup>4</sup> (url 5). So the factory buildings,

administration buildings, housing and social services in two of them were designed by the same architect.

#### 4. The analysis of four sugar factories

The four factories which were mentioned above, although they were established at different years, shows similar design principles from architectural perspective. Territory decisions and architectural construction techniques and design of settlements were surprisingly resemble to each other. At this point, the modernity project of Republican government would be effective. Since, the state has given significant roles to spatial strategies, in order to achieve modernist approach, their architectural approaches were similar to each other, like sugar factories.

In four of the sugar factories mentioned above, the criteria for location have some common roles such as;

- Near to water supply/river (Alpullu-Ergene river, Eskişehir- Porsuk river, Uşak-Gediz river),
- Possession of the workable soil,
- Near to the edge of the railway connection.
- The architectural evaluation of them is;
- Modern architectural style is seen on the plan and façade decorations.
- They have simple architecture and functionalism is the main role.
- Simplicity and being economic are main concerns, besides focusing on mass production.
- The factories have enlarged in horizontal line to meet the future needs.
- The cover systems are mansard or crib roof.
- Modern structural systems as, molten iron and steel is used as a structural element of buildings.
- Architectural spaces suitable for production technology and equipment are designed in the main headquarters of the factory. The production is made in single storey buildings with wide span, metal structure.
- There are also important places in four factories that support social change through industrialization as well as factory buildings and associated units.
- In all four factories, it is observed



**Figure 14.** The general view from Turhal Sugar Factory (Alpullu Sugar Factory Archive, 2015).



**Figure 15.** Turhal Sugar Factory, 1934 (Alpullu Sugar Factory Archive, 2015).

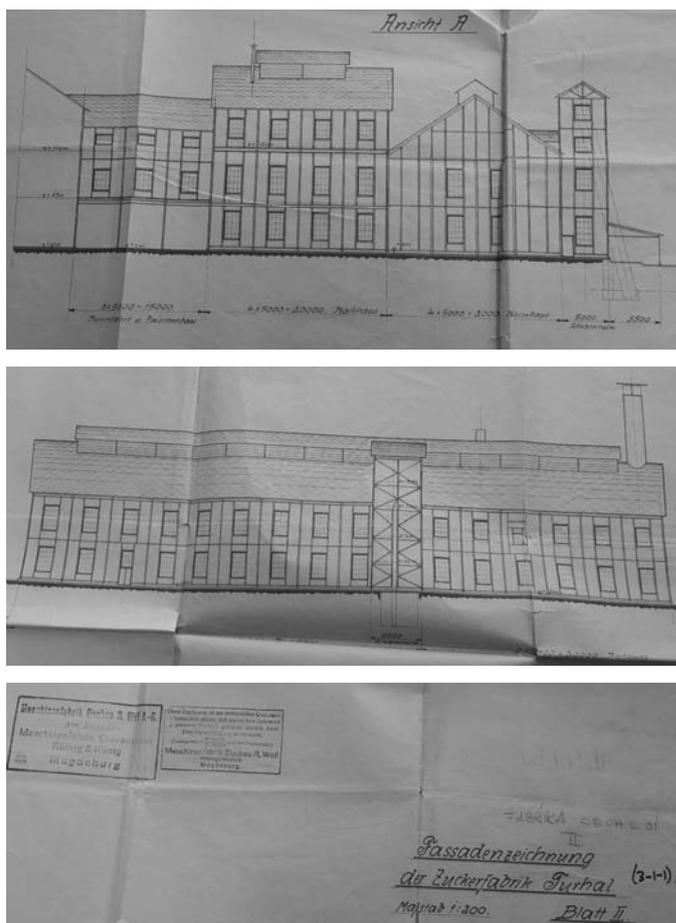


**Figure 16.** Turhal Sugar Factory construction period, 1934 (Alpullu Sugar Factory Archive, 2015).



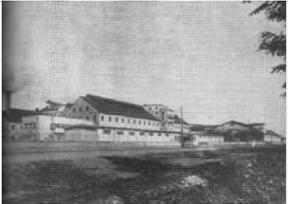
**Figure 17.** Turhal Sugar Factory guest house (Alpullu Sugar Factory Archive, 2015).

that this rational planning fiction is maintained in workers' and civil servants' lodgings and social facilities, where the settlement plan is designed in a very rationalist approach (Table 1, 2).



**Figure 18.** The facades of Turhal Sugar Factory (Sugar Factories General Directorate Archive, 2014).

**Table 1.** Primary sugar factories of Turkey, Alpulu, Uşak, Eskişehir and Turhal.

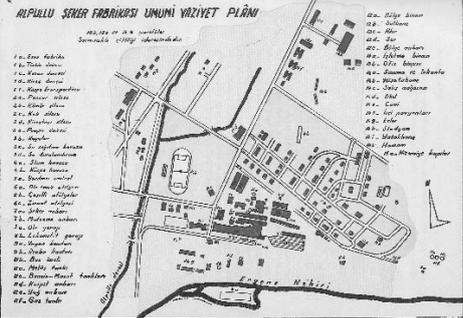
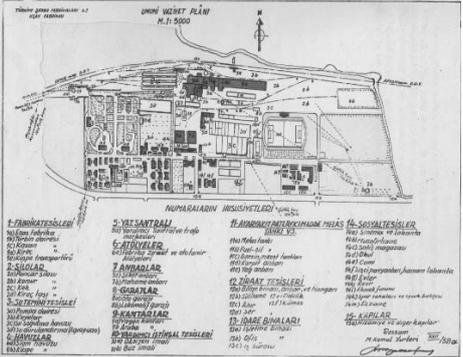
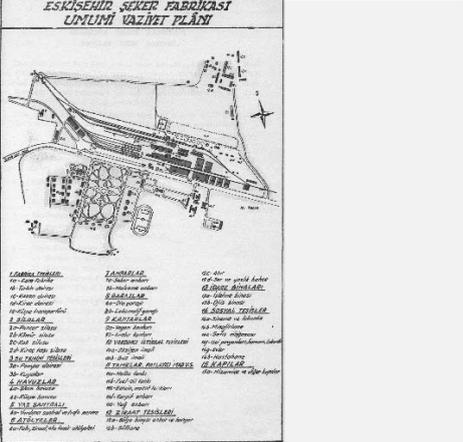
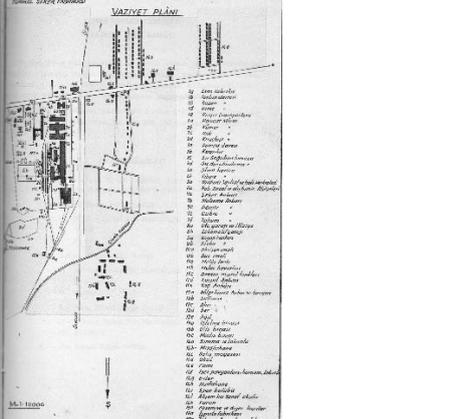
CITY	FACTORY	ESTABLISHMENT YEAR	ORDERED COMPANY	TURKISH COMPANY
A L P U L L U		26.11.1926	Maschinen Fabrik Buckau R. Molf Aktien Gesellschaft Magdeburg	Istanbul and Trakya Sugar Factories Turkish Joint Stock Company
U Ş A K		17.12.1926	Czechoslovak, Skoda Company	Uşak Turkish Progress Ziraat Joint Stock Company
E S K İ Ş E H İ R		5.12.1933	Maschinen Fabrik Buckau R. Molf Aktien Gesellschaft Magdeburg	Anatolian Sugar Factories Turkish Joint Stock Company
T U R H A L		19.10.1934	Maschinen Fabrik Buckau R. Molf Aktien Gesellschaft Magdeburg	Turhal Sugar Factory Joint Stock Company

Administrative buildings of sugar factories, even the most paradigmatic examples of modern architecture, were presented as not being contextual and responsive to local conditions. For example, four buildings built in different places but shows a common modern style which were responsible to light nature and context.

In four of the buildings, production related services, there are significant spatial signs that support social change. Worker's house which were one of the most important buildings, not only a house but also is a part of social change.

These Sugar factories also show architectural resemblances with the ones built in Europe and America. Because at the beginning of 20th century "Sugar factories" which were established especially in South America and Europe shows architectural similarities with the ones in Turkey. For example, Florida Sugar Cane factory building which was built in 1929, have big floors, rectangular shaped windows, mansard and lighted roof (url 6). Alpulu factory have similar in floors with lighted

Table 2. Site plans of sugar factories, Alpullu, Uşak, Eskişehir and Turhal.

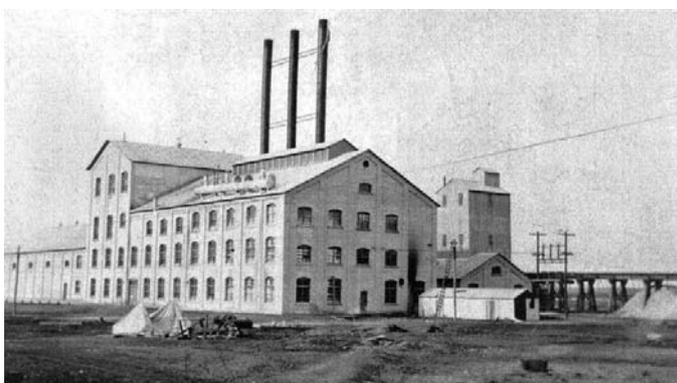
FACTORY NAME	SITE PLANS OF FACTORIES	NEAREST RIVER	NEAREST RAILWAY
ALPULLU	 <p>ALPULLU ŞEKER FABRİKASI ÜNİVERSİTELERİ M.1:5000</p>	Ergene River	Istanbul-Kırklareli Railway Station
UŞAK	 <p>UŞAK ŞEKER FABRİKASI ÜNİVERSİTELERİ M.1:5000</p>	Gediz River	İzmir-Aydın Railway Station
ESKİŞEHİR	 <p>ESKİŞEHİR ŞEKER FABRİKASI ÜNİVERSİTELERİ M.1:5000</p>	Porsuk River	Eskişehir-Ankara Railway Station
TURHAL	 <p>TURHAL ŞEKER FABRİKASI ÜNİVERSİTELERİ M.1:5000</p>	-	Samsun-Sivas Road

roofs and chimneys. Also proximity to railway is valid for both factories. (Figure 19) Another one in America, Layton Sugar Co., Utah (1915) (url 7) have similar window arrangement on the

façade decoration and with a high eye-piece roof with Turhal factory. (Figure 20). The design of windows were rectangular in Turhal while it has a light bomb in Layton.



**Figure 19.** Florida Sugar Cane factory ([www.ussugar.com/history/](http://www.ussugar.com/history/)).



**Figure 20.** Layton Sugar Co., Utah (1915) (<http://www.standard.net/Local/2015/10/12/Monday-Memories-Early-agriculture-in-Layton>).

Also, soon after these four sugar factories were built, many new factories were put into progress in 1930's. In the Five year industrial plan of 1934, Sümerbanks' publication reported the construction of fifteen factories such as; Bakırköy textile factory (1934), Kayseri sümerbank factory (1934), Bursa silk factory (1935), Ereğli iron steel factory (1937), Nazilli cotton factory and İzmit paper mills factory (1936) (Anon, 1937:3). Although Nazilli and Kayseri cotton mill factories were built by Soviet architects, their site planning's and spaces of the buildings resembles with sugar factories. (Asiliskender, 2009, Doğan, 2009) Because, both of them include workers' houses, social places, cinema, swimming pool, school, hospital and sports facilities in addition to main factory buildings. Also the plans of single pavilions and officer apartments of Nazilli, Kayseri and Alpullu is almost the same. Another, Zonguldak workers' houses for mine workers that was designed by Turkish architect Seyfi

Arkan, were built in modern architecture style having small garden houses like Eskişehir (Arkan, 1936).

Even the four sugar factories were built in 1926 to 1934 years, the other factories built after them were built in a similar planning principles and program, under modern industrialization modernity project in 1930's.

Also, architectural style of the buildings of sugar factory complexes remind the architectural style of Bauhaus movement bridging the gap between art and industry founded in Weimar 1919. Because even it is characterized by economical sensibility, simplicity and focus on mass production, are the concerns of sugar factories also (url 8). The precondition of machine production, functional and aesthetically pleasing objects for society rather than individuals in Bauhaus (url 9) is valid for sugar factories also. Because machines and steel usage were affective in factory buildings and houses for workers were built both in functional and aesthetically designs.

## 5. Conclusion

During the early republican period of Turkey, new industrial complexes were emerged through modernity project and modern architecture. One of this industrial complexes were the sugar factories with their production and residential buildings, which were particularly significant, both as quintessential modern buildings and as built manifestations of modernity project in Turkey.

At the beginning of 20<sup>th</sup> century, as Cengizkan states; (Cengizkan, 2006: 16) seeing the utopian planning approaches of "Garden City" of Ebenezer Howard and "Cile Industrielle" (Industry City) of Garnier, were not surprising in our country. Especially workers' houses were the first examples of these in Turkey. Even more, not only their worker's houses but new places for social life of its inhabitants were also concrete images for reflecting industrial city approach during the first quarter of 20<sup>th</sup> century in Turkey.

Moreover, they are symbolic reminders of Turkish industrial past acting as a warehouse for collective memories of many people as these

complexes were the main sites for daily life of its inhabitants. They represent not only industrial history but also social past of a nation since sugar factory community plays an important role for the collective memory of the time they lived in these buildings. Therefore preserving and reusing these buildings have importance for protecting of these social memories and transferring them to next generations.

Furthermore, their success is also emphasized by Gez. Prof. Spengler and Gez. Fr. Wilh. Meyer, Wiesmar, I.Mck-glb as he states in his diary found in Eskişehir factory archive ;

“...Since three weeks we have visited all sugar factories in Turkey and witnessed that young industry is on a very high valuable level and the sugar factories are equally level with European ones.. Also sugar industry works with chancery beets is an important point. We can say that the factory works very well...(13/09/1936) (Veldet,1958:441)

These complexes also present an ideal ground for their reuse as they are characteristically simple form, small, variable in squares and well-designed buildings. In addition to their modern architectural properties, they also represent strong social and cultural values as the concept of intangible heritage. When we speak with the people lived there in the past, we see a strong link between its community, buildings and their past. In this context, sugar factories provide the people who has lived in, with a sense belonging and connecting and defining the character of a community by sustaining a strong connection with the past, present and future. Consequently, in all primary sugar factories in Turkey, these architectural complexes actually serve as symbols of social and cultural identities of their time and therefore preserving and reusing of these sites is essential for transferring social identity memory to the next generation.

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