

## **The Use of Saint-Gobain Glass Roof Tile in New Urban Districts of Turn-Of-The-Century Izmir**

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This paper is a brief report on work in progress. The topic emerged when, in the summer of 2003, my uncle decided to repair the roof of his house in Izmir, Turkey. When I dropped in on the works, I had the occasion to notice the glass tiles that had been removed from the skylight. The glass tiles were of exactly same form and pattern as the Marseille clay roof tiles, which had also been removed from the roof and were available for immediate comparison—more about which comparison, later. The glass tiles bore the insignium of Saint-Gobain. The house was located in an Izmir district—Eşrefpaşa—that had been the result of deliberate urban planning starting by the end of the 1870s. My uncle's house had its origins in that decade. I knew that Izmir, as a rapidly developing international harbour city that was also receiving large contingents of immigrants from Balkan and Caucasian lands which the Ottomans were rapidly losing, was a major consumer of contemporary construction materials. But the Saint-Gobain tiles were news. I started to look into it.

As is known, Saint-Gobain is one of the famous glass producers of Europe established in France in the mid-seventeenth century. Through its industrial glass production and commercialisation in the nineteenth century, the Saint-Gobain Company found new customers in the Mediterranean markets. One of these markets was Izmir, the harbour city on the Aegean coast in Western Anatolia. Having for centuries been an attractive harbour, by the nineteenth century the city had become for foreign merchants a major spot for purchasing the agricultural products and raw materials of the rich hinterland. Especially after the 1833 Convention of Commerce and Navigation signed between the Ottoman Empire and Great Britain, which granted foreign merchants the right to trade directly within Ottoman territories, Izmir became a wealthy and cosmopolitan city of trade. During the second half of the nineteenth century, the native Turkish population of the Balkans, Crimea, Caucasus and Crete were resettled in the new urban development areas of Izmir. In contrast with the centrifugal, medieval settlement structure that dominated the city's make-up until then, the new housing neighbourhoods emerged as planned and well organised grid-iron districts attesting to nineteenth-century urban modernisation.

The issue of this paper is the use of Saint-Gobain glass roof tiles in these new urban districts. While the extant, predominantly medieval sprawl of the millennia-old city did not offer room for modernising intervention, the need for new housing stock offered experimental ground for state-of-the-art construction development. This change in the construction history of Izmir exposes the existence of a concrete trade link specialised in construction materials between the Aegean and Western Europe. The study particularly aims to trace the material signs in the exemplary district of

Eşrefpaşa where predominantly exiles from Crete were settled. It concentrates on a dwelling already mentioned, where I discovered the Saint-Gobain glass tiles.

## **SAINT-GOBAIN: A FRENCH GLASS MANUFACTURER**

Saint-Gobain is a French glass manufacturer founded in Paris in 1665 as “La Manufacture Royale des Glaces à Miroirs” (Pris 1975, p. 4). As indicated on the Saint-Gobain website, it was “created ... as part of the plan devised by [the King] Louis XIV and Colbert to restore the French economy” (<http://www.saint-gobain.com/en/html/groupe/historique.asp>). Until the French Revolution in 1789, the company held privileges in manufacture and sale offered by the royal family. The manufacture moved to Saint Gobain in the north-east of Paris in 1693 to produce plate glass and mirrors on an industrial basis (Hamon 1988, p. 196, Hamon 1998, pp. 36-40). By 1789, its monopoly on glass manufacture in France had ended and its privileges abolished. An environment of economic freedom prompted Saint-Gobain to centralise and compete with the increasing number of glass producers in France. For example, it had only three establishments and one depot in 1830 in contrast to five establishments and 11 depots in 1702 (Hamon and Perrin 1993, p. 177; Pris 1985, p. 653). By 1830, the Saint-Gobain Glass Manufacturer slightly shifted character and assumed the designation, “Compagnie de la Manufacture des Glaces et Produits Chimiques de Saint-Gobain et Chauny” (Pris 1981, p. 547).

The local and foreign markets of Saint-Gobain conspicuously developed after 1760 (Pris 1981, pp. 463, 485). The map about the export of glass in 1776 indicates that northern and central Europe and partly the Far East constituted the international market areas (**fig.1**). Plate glass, coloured glass and mirror were the main exporting items.

In the late seventeenth and early eighteenth centuries, the commercial traffic to eastern markets was conducted by several firms of French origin. The earlier one was “La Compagnie des Indes Orientales” which, for example, transported large amounts of glass to Thailand in 1687. Besides, “La Compagnie de la Chine”, founded in 1700 by the French merchants Jean Jourdan, Marc Rémigeaud-Montois and Pierre Pecquot de St-Maurice, was concerned with the market of China (Pris 1981, p. 462).

In the restoration period following the French Revolution, glass export commenced again in 1792. The overseas and the Mediterranean markets, especially the south European ones, had again expanded by the early nineteenth century. For instance, according to the accounts of 1829, there was an evident increase in traffic with Holland, Spain, central Italy, Naples, and the French Colonies. Additionally, the United States, Latin America, North Africa and the Ottoman Empire were new markets (Pris 1981, p. 466, 472-4) (**fig.1**).

In terms of trade with the Ottoman Empire, the first commercial relations were set up at the beginning of the eighteenth century by French merchants. Claude Pris (1981, p. 462) writes that “La Compagnie de la Chine” tried to find new customers in Istanbul and the Levant in 1699 and 1700. Yet the Saint-Gobain glasses had to wait two years in a shop in Beyoğlu, Istanbul. Unsurprisingly at the beginning of the 1700s, Saint-Gobain products did not attract the local market because of the competition and widespread privileging of importation and use of small Venetian glasses in the Ottoman Empire, and due to quite high price for local customers. As a result, the first Saint-Gobain venture in Turkey had failed. As a matter of fact, Pris (1981, p. 485) defines Saint-Gobain glasses as the “small glass of Paris” and emphasises that the sales of these glasses met with difficulties in the Mediterranean region, especially in the Levant and Spain, due to their high cost as well as the dominance of Venetian glasses in the market.

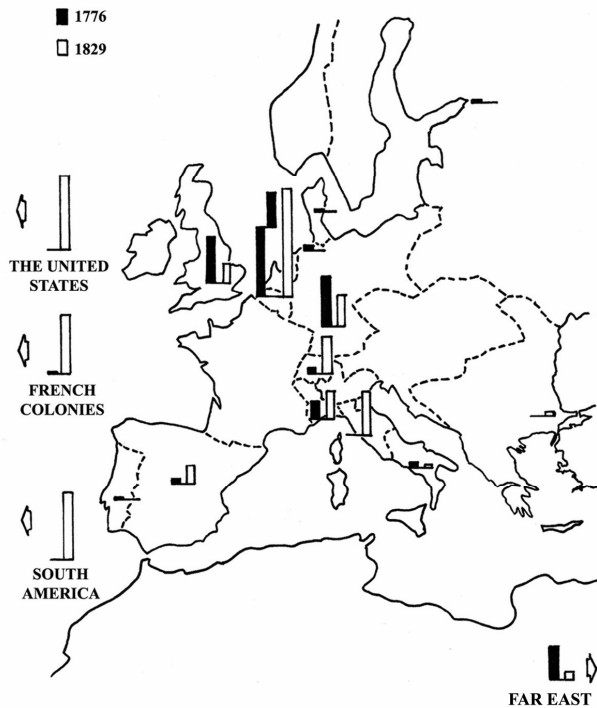


Figure 1. Export of Saint-Gobain glass in 1776 and 1829 (redrawn from Pris 1981, p. 654).

Less than a century later, however, Saint-Gobain glasses were once again in the Ottoman market. According to Saint-Gobain records, the Ottoman market shared 12% of the outer trade in 1792 with Holland and Asia (Pris 1981, p. 467). As a reason for change in demand, Fernand Braudel (1979) draws attention to Istanbul as an important stock exchange centre in the same period. He points at the increase in the variety of imported goods in Istanbul, especially expensive luxurious ones including imports from the New World. Similarly, a French trade report supports the finding of the rising economic and commercial activity in Istanbul by stating that “the French boats carried many goods to Istanbul more than any other cities in the Levant” (Braudel 1979, p. 405).

By the beginning of the 1820s, the import rates decreased not only in the Ottoman Empire, but also in Portugal, Spain, Naples and Sardinia. Commentators ascribe this decline to two reasons namely wars that halted economic activity, and taxation for foreign merchants by European governments to protect local industries. The company established new units in such important markets as Germany (1857), Italy (1889) and Spain (1904), as indicated on the Saint-Gobain website (<http://www.saint-gobain.com/en/html/groupe/historique.asp>). It developed industrialised fabrication techniques and mass production to decrease costs. The range of Saint-Gobain building materials was increased by development of such glass applications as cast glass, toughened glass and glass tile in various types, sizes and functions (McGrath and Frost 1961, p. 66). Finally, the company looked for new customers in the Mediterranean markets. Here, the main approach was to meet the demands for industrialised building materials that had emerged through the urban modernisation movement including the one in Izmir.

### **IZMIR: A WEALTHY CITY OF TRADE**

In the nineteenth century, Izmir was an attractive trade centre for many merchants from France, the Great Britain, Germany, Austria, Belgium, the Netherlands and Italy. The well-preserved harbour was a safe and peaceful ground to reach the agricultural products and raw materials of the rich hinterland. Especially after the 1833 Convention of Commerce and Navigation signed between the Ottoman Empire and Great Britain, which granted foreign merchants the right to trade directly within Ottoman territories, Izmir became a wealthy city of exchange and an important market place for European industrial products. Parallel with an increase in maritime transport by steam boats, the trade links between Izmir and other port towns in Southern Europe and the Levant also improved. As a consequence, in the mid-nineteenth century, the city hosts the consulates of 17 different countries from all over the world (Izmir Architectural Map 2004).

In the second half of the nineteenth century, the trade played a dominant role in formation of the modern city view of Izmir. The morphology of the city transformed through interventions for such urban services as a new port with a capacity of about 300 ships, a breakwater and customs bureau next to the commercial zone, two railway lines connecting new port with rich agricultural plains of Western Anatolia, new road axes enabling easy access to the port, and inner city potable water and

street lighting networks (İngiliz Konsolosluk 1998, p. 55, 149, 236). These transformations in urban infrastructure resulted in the emergence of a new sector in Izmir, i.e. a construction market, in terms of import of construction materials and expertise. The industrialised building materials were, therefore, first imported through these new infrastructural projects of the city.

### **Imported building materials in Izmir**

This change in the construction history of Izmir exposes the existence of a concrete trade link specialised in the building materials between Izmir and Europe. The consulate reports of Great Britain on trade in Izmir present a significant panorama about the commercial circulation of industrialised building materials for a period between 1864 and 1914. According to these reports, the issued materials were timber, timber flooring, nails, window glass, iron, bricks, cement, and roof and flooring tiles. The price, quality, commercial links and political relations with the country were the primary factors influencing the trade of industrialised materials. For example, for more than thirty years, Belgium remained the first country in importation of window glass (İngiliz Konsolosluk 1998, p. 70, 82). On the other hand, price and quality were the key factors regulating the amount and origin of imported iron from Belgium, Great Britain, Sweden, France and Germany (İngiliz Konsolosluk 1998, p. 71, 82, 170, 185).

Just after the war between the Ottomans and Russia in 1877 and 1878, the trade report of Denni (İngiliz Konsolosluk 1998, p. 70), the consul of Great Britain, for Izmir between 1877 and 1881 attracts attention to the import of timber for housing construction in Izmir. He wrote that timber was a noticeably important item among other imported products of Izmir, since most of the houses were constructed by timber coming from Austria, Russia, Romania and the Balkans. Between 1882 and 1887, there was a steep increase in the import of flooring timber from Romania, Russia, Trieste and Venice (İngiliz Konsolosluk 1998, p. 83). Between 1894 and 1895, Belgian, Romanian and Austrian flooring timber was used in new buildings and depots erected for the extension of Izmir-Kasaba (Turgutlu) Railway (İngiliz Konsolosluk 1998, p. 139). Finally, another English trade report of Izmir dated 1906 informed us about a progressing debate in the local press. The debate concerned dissatisfaction with the continuance of timber importation from Romania, Russia and Austria-Hungary without using local forests of the Izmir region (İngiliz Konsolosluk 1998, p. 212).

In the first decade of the twentieth century, the consumption of contemporary building materials in Izmir conspicuously went up because of a rise in construction practices. Here, the commercial activity had an important role leading the type of demands for new building practices. As a reflection of growing commercial capacity of Izmir, the construction of new buildings for bank companies, small-scale workshops, offices and shops or extension of extant ones inflated demand. Finally, the use of industrialised building materials became widespread.

The demands for industrialised building materials were met by local and foreign producers. The local industry was limited with a few number of small-scale manufacturers. In the last quarter of the

nineteenth century, there were workshops processing imported raw iron from Great Britain, also partly from Belgium, France and Sweden for use in window shutters (İngiliz Konsolosluk 1998, p. 71). Rougon, the consul of France, in his book on the commercial and economic situation of Izmir in the 1890s, informs us that there were five workshops for iron working and casting namely Issigonis, Papps, Caramaniola, Reakin and Dimo, and Gasparis which were also producing such building materials as lime, brick and tile (Rougon cited in Beyru 1973, p. 49). In 1906, two local factories were founded to produce bricks in “European style” and flooring tiles. The local production of iron nails was also improving (İngiliz Konsolosluk 1998, p. 213). In fact, “the most crucial issue was to find cheaper construction materials, because every family wanted to have a private house” (İngiliz Konsolosluk 1998, p. 233). Therefore, the local products partly fulfilled the local need.

At the same time, the import of such industrialised construction materials as cement, bricks, and roof and floor tiles from Europe was noticeably increased (İngiliz Konsolosluk 1998, p. 233). Here, France was the main country leading the market of imported construction materials in Izmir. According to the consulate records of Great Britain dated 1906, French producers had 81% of the import of bricks and roof tiles in Izmir. The other countries were respectively the Netherlands and Great Britain. The cement was again purchased predominantly from France (73%), and partly by Belgium and Great Britain (İngiliz Konsolosluk 1998, p. 320).

The dynamism of the construction sector in Izmir had also been continued during wars between 1910 and 1914 in spite of limited credit, money shortage and insufficient labour force. The market expanded through the emergence of banks, depots, theatres, factories, educational buildings and private houses in the centre and the periphery of Izmir. The most significant indicator of this development trend was the rising imports of cement, roof tiles, iron and sanitary equipment (İngiliz Konsolosluk 1998, p. 277, 286, 298). In addition, the 100% increase in the import of Romanian timber indicates the continuous growth of the city (İngiliz Konsolosluk 1998, p. 298).

### **Izmir-Marseille trade link**

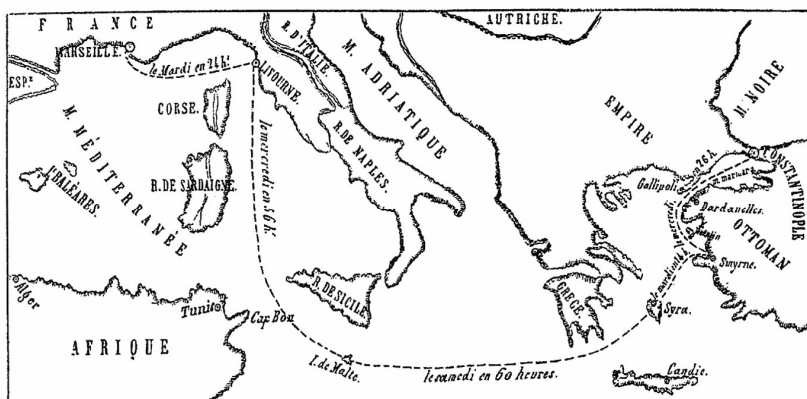
The utilisation of imported materials in Izmir exposes the existence of a concrete trade link specialised for building materials between the Aegean and Western Europe. Additionally, the import of Saint-Gobain glass roof tile as a mass product requires a solid trade movement between France and the Aegean coast of Western Anatolia. In fact, this was an old maritime trade route which had existed since the twelfth century and connecting the two sides of Europe.

In the second half of the nineteenth century, the same trade route was still used, and Izmir was the central city of trade in Western Anatolia, being on the route between Marseille and Istanbul (**fig.2**). The consulate reports of Great Britain on trade in Izmir also prove that there was a regular steamboat line by a French company in Marseille—Messageries Maritimes—plying once a week

between Marseille and Izmir (İngiliz Konsolosluk 1998, p. 174). It was one of the important steamboat companies connecting France with Izmir in the late nineteenth and the early twentieth centuries. It was also possible to find other companies trading between Marseille and Izmir. Among them were two German steamboat companies namely Norddeutsche and German Levant Lines, leading weekly cruises between Odessa, Batumi, Istanbul, Izmir, Piraeus, Naples, Geneva and Marseille in the early twentieth century (İngiliz Konsolosluk 1998, p. 203, 222).

### PROSPECTUS DE LA COMPAGNIE ROSTAND & CIE

#### CARTE DE ROUTE



Voyage complet de Marseille à Constantinople en 9 jours et demi.

Les DÉPARTS de MARSEILLE ont lieu tous les mardis de quinze en quinze jours, soit pour l'année 1847 : les 5 et 19 janvier; 2, 16 février; 2, 16, 30 mars; 13, 27 avril; 11, 25 mai; 8, 22 juin; 6, 20 juillet; 3, 17, 31 août; 14, 28 septembre; 12, 26 octobre; 9, 23 novembre; 7, 21 décembre.

De CONSTANTINOPLE, les DÉPARTS ont lieu tous les mardis de quinze en quinze jours, aux mêmes dates.

Figure 2. Maritime trade route of the Company Rostand & Cie between Marseille and Istanbul in 1847 (Daumalin and Courdurie n.a., p. 124).

In terms of importance of Ottoman markets in the export rates of Marseille port, Rambert (1934, p. 333) explains that in 1913, the Ottoman Empire was in the second rank among ten countries where commercial goods were sent. Here, it is also remarkable to see that the construction materials were the first item exported to the Ottoman Empire.

#### Changing demographic structure and developing neighbourhoods: Eşrefpaşa—the immigrants' district

In the second half of the nineteenth century, the Ottoman Empire came apart through emancipation endeavours in Eastern Europe and the Aegean Islands. There were also continuous wars with Russia at the north of the Black Sea and Caucasus region. As a result, the native Turkish population of the Crimea, Balkans, Caucasus, Crete and other Aegean islands that suffered from ethnic cleansing

migrated to Izmir. Serçe (2000, p. 165) points out that the immigrant groups brought in not only increase in the residential density of extant centrifugal, medieval fabric but also formation of new housing neighbourhoods just next to them. As a result, the city expanded towards the higher parts south and south-east of Izmir.

After the war between the Ottomans and Russia in 1877 and 1878, Izmir was confronted with a massive migration movement from the Balkans covering around 70 000 native Turks. 5-6 000 of them resided in a new housing area namely “higher district” or “mountain district” (Serçe 2000; Nazmi 1912). Most of these new neighbourhoods were spread beside an old cemetery zone belonging to the Turkish community (Kazanoğlu 2001, p. 22). One of the neighbourhoods next to this cemetery was Eşrefpaşa—formerly Nüzhetgâh District—composed of 110 households in 1885 (Serçe 2000, p. 171).

The migration had continued until the beginning the First World War. Serçe (2000) explains that during this period, the new residential areas enlarged and were crowded with new immigrants from Crimea, Caucasus and especially from Crete, after the war between the Ottomans and Greece in 1897. Finally, in 1912, the area was inhabited by about 30 000 immigrant Turks (Şimşir cited in Kazanoğlu 2001, 19).

Contrary to the centrifugal, medieval settlement structure of local community, these new urban development areas of Izmir emerged as planned and well organised grid iron districts attesting to nineteenth-century urban modernisation. The resettlement policy envisaged a modern residential development: first of all, it provided a regular cadastral organisation with such particular building regulations as, at most, two-storeyed dwellings. Secondly, it enabled the immigrants to have land and to construct their modest homes.

The mass migration brought together the problems of poverty, poor living conditions and inefficiency in municipal services (Kazanoğlu 2001). In terms of municipal lighting services, it is worth mentioning that there was no lighting network in these new urban districts until the Republican Period of Turkey. In fact, the first lighting service was commenced by the Ottoman Coal Gas Company in 1862 to feed the needs of 1 760 street lamps and some private houses in the commercial centre of the city (İngiliz Konsolosluk 1998, p. 149). The electric lighting system was first installed by the beginning of the 1910s in limited numbers of such public buildings as theatres, factories, hotels and clubs, and several private houses in the city centre (İngiliz Konsolosluk 1998, p. 285).

## **USE OF SAINT-GOBAIN GLASS ROOF TILE IN A DWELLING IN EŞREFPAŞA**

The site survey study for the dwellings using the Saint-Gobain glass roof tiles conducted in the residential district of Eşrefpaşa was held over three days in November 2003. The prime tools for



gathering data were the inventory of dwellings and interviews with the householders. The inventory sheet was practiced in 25 dwellings. The following part presents the spatial characteristics of a dwelling located in one of the early neighbourhoods of Eşrefpaşa District where the use of Saint Gobain glass roof tiles was traced.

The surveyed dwelling is located in Kocatepe neighbourhood—formerly 2. Sultaniye—close to the Eşrefpaşa Mosque and square, at a height of 112 m above sea level. The dwelling, Door No. 23, is on the east side of 668 Street, lying parallel to a steeply rising slope towards the south-east of Izmir. In terms of general layout of the dwelling on the neighbourhood scale, it is one of the attached houses in the building block of near-rectangular form lying in a north-easterly direction (**fig.3**). In fact, the Kocatepe neighbourhood is composed of well organised long, thin and almost rectangular building blocks constituting a grid iron settlement pattern. The streets perpendicular to the steep slope and on the short sides of buildings blocks are planned as the main transport lines embedding various commercial activities. The streets parallel to the steep slope are secondary lines leading easy access to houses. In this respect, the surveyed dwelling is situated in the middle parts of a secondary street (**fig.4**).

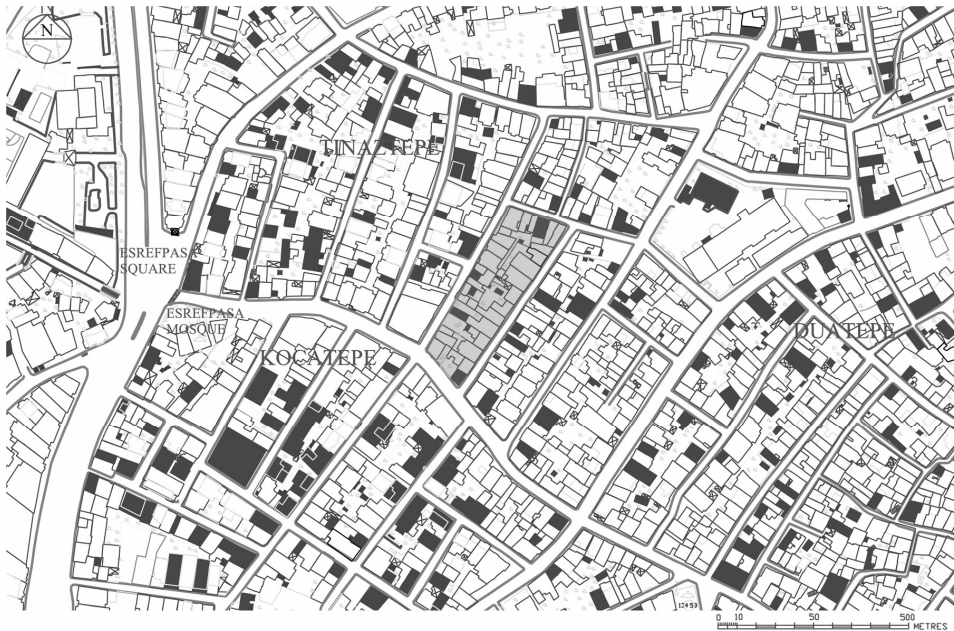


Figure 3. Current layout of Eşrefpaşa District and location of the building block of surveyed dwellings.



Figure 4. Location of dwelling using Saint-Gobain glass roof tile.

The dwelling is placed on the quite dense residential fabric (**fig.5**). Today, the neighbourhood is mostly inhabited by the tenants of middle-low or low income groups migrated from different parts of Turkey. Almost all of the former immigrants from Balkans and Crete have left the neighbourhood. The owner of the surveyed building has lived in the same home since 1944, when her family first bought the house. The family also immigrated from Bulgaria, in 1938. The old residential fabric still exists but is confronted with the problems of deterioration and degradation. Additionally, the new four to six-storeyed apartment blocks constructed in the same small-sized plots increase the residential density while fragmenting the one or two-storied old residential tissue.

The plots in the building block are of near-rectangular form with varying sizes; 94 m squares in this dwelling. All houses in this fabric are regulated in attached order without setbacks; thus they define the street with their façades. Many dwellings have rear gardens apart from the ones having courtyards, i.e. semi-public inner gardens, on the entrance façades. The surveyed dwelling also has a courtyard with direct access to the street, yet, separated by a wall higher than eye level. The

courtyard is a transitory zone between dwelling unit and street. It is also a vital space in hot-humid summers of Izmir where most of daily life passes through. An old lemon tree, well, fountain and toilet in the courtyard are the basic elements of this introverted character of daily life. The dark shaded courtyard also helps lower the temperature, thus causing natural air flow and creating a comfortable microclimate. Here, the living spaces are climatically protected zones around the courtyard (fig.6).



Figure 5. Entrance façade of the dwelling.

The information about date of construction, construction materials and technique of the dwelling is based on interviews with the owner of the dwelling and personal observations. According to the interviews, the dwelling should have been constructed in two phases in different periods. The first building located on the north of the plot as a boundary to the street was a small one-storey room composed of load bearing stone and full brick walls 35-40 cms thick. Since it was used as a grocery and coffee house, this building should have been utilised as a waiting, resting and small-scale shopping place for local inhabitants, i.e. the immigrants, and others who came to a windmill at the lower street.

In the second phase, the small building was converted into the extant form of dwelling. It was enlarged by vertical and horizontal additions. The construction system of the additions is a timber skeleton with stone and mud infill. The newer building is composed of an additional one storey building at the rear side of the plot and a second storey construction just over the previous one. There is no official record about the date of construction. Yet, the additions were most probably

constructed between the period 1906 to 1913 when the city was gradually growing and the construction practices were considerably increasing.

The one storey dwelling is bounded to the rear side of the plot by the long façade, and there were no openings to the next plots. The spaces here had no direct access to daylight. Especially, the living room on the east corner was blocked by four sides. This should have caused a lighting problem.

The darkest room at the farthest corner of the plot was lit by four Saint-Gobain glass roof tiles with a skylight (fig.6). In the current use, only two Saint-Gobain tiles lighten the room. They are located on the surface of the pitched roof facing south-east. The glass tiles offer comfortable level of lighting inside the room on clear days without necessitating extra artificial lighting (figs.7 and 8).



Figure 6. Plans of ground floor and first floor, and section of the surveyed dwelling.

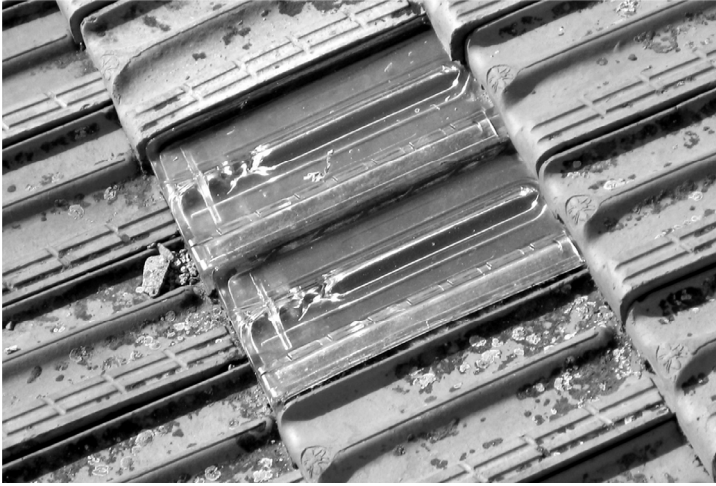


Figure 7. Use of Saint-Gobain glass tiles on the surface of pitched roof facing to the south-east.



Figure 8. Natural lighting by the Saint-Gobain glass roof tiles and skylight in the living room.

The Saint-Gobain glass roof tiles were interlocked with the Marseille type of clay roof tiles. In terms of shape, size and pattern, the Saint-Gobain glass tile is identical with the Marseille clay roof tile (fig.9). The specification of Saint-Gobain glass roof tiles is as follows:

Size of the tile : 420 mm x 250 mm  
Weight of tile : 2.730 kgs  
Surface : Plain  
Insignium imprinted on the back side of tile: 's' and 'g' in small letters with one inside another (in a circle) and ST-GOBAIN B<sup>TÉE</sup>-S.G.D.G. C<sup>IE</sup>-OE 11 (in a circle).

The Marseille clay roof tiles on the roof are most probably the original tiles which were designed and produced by Guichard Carvin et Cie and were first produced at the tile workshops in Marseille. The specification of Marseille clay roof tiles is as follows:

Size of the tile : 420 mm x 250 mm  
Weight of tile : 2.480 kgs  
Insignium imprinted on the front side of tile: 'bee' insignium at the bottom  
Insignium imprinted on the back side of tile: GUICHARD CARVIN& C<sup>IE</sup> between two 'bee' insignias and MARSEILLE S<sup>T</sup> ANDRE.



Figure 9. Marseille clay roof tile and Saint-Gobain glass roof tile used in the roof of surveyed dwelling.

## CONCLUSION

This paper focuses on the use of Saint-Gobain glass roof tiles in an immigrant house in Eşrefpaşa. In fact, the Saint-Gobain glass roof tile depicts a symbolic meaning underpinning nineteenth-century urban modernisation. The urbanisation policy of the Ottoman governors for the modern

development of Izmir emerged as both planned and well organised grid iron districts and up-to-date, healthy and reliable dwellings using industrialised building materials.

The use of industrialised building materials, especially in this case an imported material, was a sign of emerging transformation in the housing practice of Izmir. In such a case where some nineteenth century houses had no glass windows, yet had wooden shutters, the skylight with glass tiles might be a ground-breaking solution for lighting the inner space of a house. The use of a contemporary building material led to a new use of space; without the Saint-Gobain glass roof tiles, the inhabitants of the surveyed dwelling could never live in such a dark room. It was a new design challenge that allows sufficient influx of sunlight for the micro-climatic conditions of Izmir. Hence, the dwelling in Eşrefpaşa is an essential case of mediation and appropriation where the industrialised building materials were merged within the millennium-old construction knowledge of Izmir.

## **ACKNOWLEDGMENTS**

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