

INFILL DESIGN GUIDANCE AS A MECHANISM FOR THE SUSTAINABILITY OF THE HISTORICAL ENVIRONMENT: THE KUZGUNCUK-BEREKETLI STREET, ISTANBUL CASE STUDY

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Abstract. Intact buildings, along with their construction techniques, materials, technology, economic potential and aesthetic comprehension from the time they were built, facilitate a clearer grasp of that period's knowledge. The preservation of historical texture and cultural continuity relies on the significance of the forms and shapes of new buildings, which are just as crucial as the buildings themselves. Preserving history and reflecting the current period are crucial in maintaining integrity and continuity between structures. To ensure the sustainability of textures, it is crucial to address the protection of historical values, the design of new buildings within the historical setting and the management of the aesthetics and perception that the combination of old and new buildings creates on the street. Simultaneously, the failure to execute strategies to safeguard the historical fabric in Kuzguncuk- Istanbul, results in significant harm to the area. It appears necessary to create a guide due to the local character and historical significance of Bereketli Street being threatened by changes and inadequate conservation efforts. The design guide prioritizes vitality, security and the creation of social engagement places in the protected area. It also involves identifying references from the past that should be carried forward into the future.

Keywords: Urban design guide, design in traditional texture, new building design, infill design guide, urban protected area.

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1. Introduction

“Urban design is allied to architecture and planning. For its practice it requires some of the skills and knowledge of both disciplines. The subject matter of urban design is the arrangement of many buildings so that they form a single composition” (Moughtin, 2003). Urban design includes the third dimension before considering two-dimensional development plans and architectural details. It is an intermediary discipline that reflects the physical, social, economic, historical and cultural characteristics of the city. Urban design studies in the historical environment aim to establish a relationship with today's settlements and ensure sustainability by ensuring the protection of the area. The objective of urban design guides utilized as practical instruments in urban design research within protected areas is to preserve and improve the distinctive characteristics of the urban identity in accordance with the specific objectives of that location (Madanipour, 1996).

Carmona defines urban design as “the art of creating spaces for people”. It is not solely about the aesthetic appeal of locations; it is also about their functionality. It pertains to the relationships between the built environment and nature, movement and urban form and people and locations (DETR/CABE, By Design, 2000, as cited in Carmona *et al.*, 2003).

From this perspective, the main priority of urban design studies within the traditional texture is to organize the form of new constructions and design public spaces while preserving the identities of historical buildings. Urban design guides are tools used in urban planning that facilitate the creation of a shared understanding of urban spaces. They consider the entire city and provide specialized guidance to designers based on the location and period of implementation. Urban design guides, which encompass information from macro to micro levels in the design process, have a crucial function in safeguarding the identity and coherence of urban areas. Urban design guidelines are comprehensive and instructive documents that outline established methodologies and practices for a particular geographic region. Urban design guides that define the third dimension and discuss issues such as details, materials and architectural character in detail are guiding the designs (Konuk, 1999).

The basic principles for the urban design guides defined in the “Spatial Plans Construction Regulation”, dated 2014, have also been determined. The key elements can be categorized as adjustments to the topography and natural characteristics, arrangements for pedestrians and vehicles, control of open space utilization and comprehensive evaluation of urban infrastructure and the connection between buildings and streets. In the guide published by the Ministry of Environment and Urbanization “Urban Design Guides” are referred as the planning tools that direct design controls in order to create and maintain urban identity and ensure design quality. “The guides are used and managed by designers and entrepreneurs rather than legislators” (Ministry of Environment and Urbanization & MSGSÜ, 2016). This definition serves as a guide between the disciplines of planning and architecture, expressing urban design guides' development plans in the third dimension. It is presented at different scales, from upper scale areas to local neighborhoods or streets and on different focus topics such as historical environment, ecology and landscape. The design guide prepared by the Ministry of Environment and Urbanization includes information about the definition and legislation. The content of the guide is defined and evaluations with examples from around the world are included. According to the definition here, urban design guides serve as a control tool and guide rather than a binding law or law. In Türkiye, the Ministry of Environment and Urbanization implemented a protocol as part of the “Preparation of Urban Design Guides Project” in 2016. This protocol requires the preparation of an urban design guide for protected areas.

Lang states that urban design guides aim to maintain the distinctive character of a space, promote coherence and consistency, enhance the quality of public areas, facilitate movement and clarity and establish a harmonious urban environment through the creation of diverse and adaptable spaces (Lang, 2005). A major challenge in contemporary urban environments is the loss of urban memory caused by improper new construction, destruction and damage of urban texture and demolition practices that result in alterations to neighborhoods and streets. In the Kuzguncuk District, numerous cultural and historical assets have suffered deterioration over time, resulting in the erasure of the city's collective memory of its historical environment. This has been exacerbated by the construction of new buildings, which not only fail to preserve the identity of the destroyed structures but

also contribute to their destruction. This is a matter concerning historical circles, which necessitates legal protection and regulation. This study is focused on the preservation of the historical environment and the challenges associated with new building in historical areas.

The historical texture of Kuzguncuk - Bereketli Street must be regarded in conjunction with its environment and protected to guarantee sustained conservation. The primary objective of the study is to provide design rules for new constructions that alter the street's identity while respecting the existing texture. The analysis yielded recommendations for the silhouette of the new structure, including curves, size, facade openings and suitable color and material possibilities for the texture. The objective of these recommendations is to enhance the historical, artistic and aesthetic significance of the street, to establish a highly accessible, safe, clean and vibrant street system, so ensuring sustainable preservation.

The study employed an approach comprising a literature review and fieldwork. Articles containing the keywords listed in Table 1 were searched in the SCOPUS database as part of the literature review (Table 1). In April 2024, an on-site search was conducted to examine the exterior aspects of the protected and contemporary structures on Kuzguncuk-Bereketli Street.

Table 1. Research topics - SCOPUS database

Document by Subject Area	“Urban Design Guidelines”	“Urban Desing Guidelines” and “New Building”	“Urban Desing Guidelines” and “Infill Design”	“Urban Desing Guidelines” and “Historical”
Social Sciences	97	1	1	3
Engineering	3	1	-	1
Environmental Science	11	-	-	-
Energy	4	-	-	1
Computer Science	2	-	-	-
Arts and Humanities	4	-	-	1
Mathematics	1	-	-	-
Total (1990-2025)	122	2	1	6

2. Meeting Point of Three Religions: Kuzguncuk

Kuzguncuk is a historical district located in Üsküdar district, on the Anatolian shore of the Bosphorus (İstanbul). It is a valley settlement that has not been able to spread on the land due to the limitations of its geographical features. It is a district that has been home to many different cultures throughout history. “The Other Name of Tolerance: Kuzguncuk” has become the meeting point of three religions and a place where different ethnic groups live together (Bektaş, 1996). Today, it is a Bosphorus settlement where the traditional texture of Istanbul is preserved. Kuzguncuk is a settlement that can largely reflect the historical texture and spatial characteristics of the old Boğaziçi villages located within the Boğaziçi Historical and Natural Protected Area.

In Kuzguncuk, the architectural landscape is mostly characterised by grand and traditional wooden structures from the Ottoman era, as well as residential complexes from the Early Republic period. Furthermore, among the Ottoman and Republican architectural styles, this place also exhibits remnants of Armenian and Greek inhabitants¹.

Kuzguncuk is the initial Jewish colony in Istanbul located on the Asian continent, as stated by İşli in 2002. The Jewish community in Kuzguncuk has a long history, dating back to the Byzantine period before to the conquest of Istanbul. However, significant Jewish settlements occurred with the influx of Sephardic Jews in 1492. Following the successful conquest of Istanbul, the population of the city started to grow as a result of zoning and settlement initiatives. During the Ottoman Empire, the urban governance strategy involved establishing a settlement framework that fostered cohabitation among many ethnic groups. According to a map created by Kauffer in 1776, the settlement was strategically located in the vicinity of İcadiye Street, close to the sea, in Kuzguncuk. The multicultural composition of Kuzguncuk emerged during the 17th and 18th centuries, with residents of diverse ethnic backgrounds, including Greeks, Jews and others, coexisting harmoniously. The Great Synagogue (Beth Yakov Synagogue) and the Small Synagogue were constructed by the Jewish community, while the Ayios Yeorgios Greek Orthodox Church and the Ayios Pantelemon Church were established by the Greek community. The construction of Üryanizade Mosque in 1860 indicates that Turks did not inhabit Kuzguncuk until the 19th century (Bektaş, 2011). The earliest zoning plan of Istanbul, known as Kauffer's plan of 1822, proposed the idea of creating wide roads. This concept was further emphasized in the Moltke plan of 1837. The Ebniye and Turuk regulations, implemented in 1848, aimed to prevent fires in the city. These regulations included provisions for the construction of wide roads, the expansion of squares and roads, the establishment of building height limits, the specification of building materials, the implementation of construction techniques and the enforcement of construction supervision (Akın, 1994).

The Moltke plan, which was created in 1852 and includes the layout and topography of the area, reveals that the settlement began to increase in density from İcadiye Street towards the ridges. Article 12 of the Turuk and Ebniye Regulation from 1863 states that in order to facilitate fire intervention, expansion works in islands and neighbourhoods should be conducted, particularly in areas limited by roads. It also emphasises the importance of making the lands as square or rectangular as possible. Upon examining the settlement pattern in Kuzguncuk, it becomes evident that the roads are carefully designed to follow the natural landscape, the construction plots are organised in a rectangular manner and the buildings are constructed in close proximity to one another, with backyards, in compliance with the regulations.

The fires that occurred in Istanbul prior to the 19th century resulted in significant destruction to the wooden residences in the settlement. A significant number of wooden dwellings were devastated by flames during the years 1865-66. The fires in Kuzguncuk resulted in the destruction of 500 houses and shops. Subsequently, the municipality established a bazaar in this vicinity (Bektaş, 2011). Despite the extensive damage caused by the fires, numerous commercial, ecclesiastical and traditional residential buildings in Kuzguncuk have managed to endure till present day due to successful restoration or reconstruction efforts. In the 19th century, Şirket-i Hayriye constructed a pier in Kuzguncuk, which subsequently became a significant hub for transportation on the Bosphorus. Over time, Kuzguncuk emerged as the primary area of habitation as a result of expeditions and migrations between the villages along the Boğaz region (Kuban, 2001). Prior to the 20th century, the formation of settlements was influenced by the Regulations established during the Ottoman Period, resulting in the development of coastal and village settlements along the Bosphorus. The implementation of coastal highways on the Bosphorus in 1936, as designed by French Architect Henri Prost, led to

a rise in the concentration of buildings in the area. The Pervititch fire insurance maps, created from 1922 to 1943, provide detailed information about public buildings, streets and building blocks in the Kuzguncuk community. This map, created specifically for fire and insurance purposes, contains specific information about the parcels. The development in Kuzguncuk evolved in two directions: along İcadiye Street and the coastline. This can be observed in Figure 1, where it is evident that the coastline remained unchanged. Upon overlaying the Kuzguncuk Pervitich map with the current baseline, it becomes evident that the grid system originally planned in the early 20th century has been maintained. The major roads remain unchanged, with a concentration of buildings observed on İcadiye Street. However, there have been alterations in some parcels within the coastal settlement and the structures located between the shore and the main road no longer exist in the present day (Figure 1). The repercussions of the Wealth Tax on minority groups in Türkiye during the 1940s were also evident in the Kuzguncuk district. Following the foundation of the State of Israel in 1948, a significant number of Jews residing in various parts of Türkiye, including Istanbul, started to relocate. The events that occurred on September 6-7 led to the widespread looting and pillaging of the properties belonging to non-Muslim groups, specifically the Greek, Armenian and Jewish communities. The occurrence of these incidents led to the migration of non-Muslims residing in areas like Kuzguncuk (Bektaş, 2011).

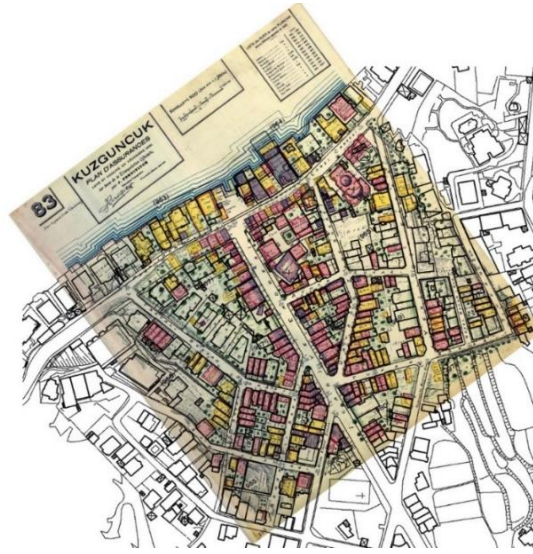


Figure 1. Overlay of Kuzguncuk Pervitich Map and Current Baseline

The urban texture of Kuzguncuk remained almost unchanged until the 1960s, it underwent rapid change due to population growth, migration, the use of the Bosphorus Bridge in 1973 and its proximity to the center of Üsküdar (Çubuk, 1975). In the 1970s, when the Kuzguncuk district, as well as Türkiye and the city of Istanbul, entered a process of change, high-income Muslims, Greeks, Jews and Armenians began to migrate to new settlements. Over time, buildings that were abandoned and neglected started to deteriorate and lose their original aesthetic. As rural-to-urban migration increased, the ownership status of houses in the Kuzguncuk district also altered, leading to the district losing its original settlement characteristics. During the 1990s, artists and painters who required workspaces with tall ceilings started to regain their preference for these constructions. Thus, today's multi-layered cultural structure of Kuzguncuk began to form.

Kuzguncuk with popular television series such as “Yeditepe Istanbul”, “Perihan Abla”, “Süper Baba” and “Ekmek Teknesi”, which were shot in the historical streets of Kuzguncuk from the 1990s to the early 2000s, emphasizing good neighborly relations and unity within the neighborhood, which are now on the verge of disappearing in Istanbul has become a popular district. So much so that the TV series gave their names to the streets of Kuzguncuk and became a part of the neighborhood. Kuzguncuk has also been a frequently used location in the field of photography. Although some of the residents of the district are satisfied with this situation, some are disturbed. Residents of the neighborhood posted their reactions on the doors of their houses; “Kuzguncuk is a district, not a set”. “It is forbidden to take photographs in front of this house”. They show it with their writings. Today, there are many cafes, bookstores, galleries and boutique hotels in the district, where many visitors come and the daytime population is concentrated.

3. Analysis for the Bereketli Street Urban Design/ Infill Design Guide

Field investigations were conducted to develop an urban design guide for Kuzguncuk / Bereketli Street. Global urban design guides from historical contexts, such as the London Urban Design Guide (PPG) (URL 1) and the Edinburgh Urban Design Guide (URL 2), were analyzed due to their similarity to the Turkish planning system. The assessments for developing design concepts for Kuzguncuk / Bereketli Street, based on these guides, were evaluated under the categories listed in Table 2.

“Urban design is the art of arranging buildings to form unified compositions. The main medium of this design process is the urban realm” (Moughtin, 2003). “Urban design is typically defined in terms of architecture and town planning... Urban design is not, however, simply an interface. It encompasses and sometimes subsumes a number of disciplines and activities” (Cormona *et al.*, 2003). The street texture, which embodies the cultural identity of the city, is the most crucial component of the urban infrastructure. Hence, it is imperative to guide the streets that are experiencing significant transformation in the historical urban setting in order to ensure their preservation. The prepared guidelines aim to regulate urban transformation and facilitate the preservation of historical buildings while maintaining their historical significance. To ensure that the new buildings on the street blend well with the existing qualified buildings, it is important to carefully consider the parameters that contribute to the character of the historical texture. These parameters include the location within the parcel, height, mass ratios, material, color, facade and roof types, among others (Ahunbay, 2019).

This study aims to examine the necessary components of the urban design guide for the construction of new buildings on Bereketli Street and propose recommendations. The primary objective is to provide guidance for new building designs while maintaining a sense of harmony throughout the street². Bereketli Street consists of a total of 19 buildings, with 15 of them being traditional and the remaining 4 being new. The examination focused on several aspects including street texture, settlement patterns, the interaction between buildings and parcels, plan and façade elements, construction techniques and material and color characteristics.

Table 2. Kuzguncuk “Bereketli Sokak” urban design guide

Macro-Scale Approach Urban Scale	Defining the study area boundaries	Differentiation of the natural structure, changes in urban fabric and land usage
	Location and historical development	Historical maps and aerial photographs (past and present)
	Conservation processes	Legal regulations, conservation plans, Bosphorus Conservation Plan
	Social structure characteristics	Migration, fires, coexistence of different ethnic groups and the formation of today's social fabric
Neighborhood and Street Scale Silhouette Approach	Natural and built environment characteristics	analysis of the natural environment: green areas, valleys, aspect and slope analysis Physical Structure Analysis: road network and circulation patterns, dominant functions, building heights, heritage listings, building materials,
	Traditional urban fabric and housing	Street texture, street-building relationships, block morphology, building-to-building and building-to-parcel relationships
Micro-Scale Approach Street Appearance Building-Structure Scale	Street character	Listed buildings, proposed listings and new constructions, building functions, heights and widths
	Settlement Pattern & Parcel Relationships	Building-to-building, building-to-parcel and building-to-street relationships, building entrances
	Plan and Façade Characteristics	Traditional floor plans and open-closed (bay window) projection types, types of entrances (flat, recessed, with stairs), façade analysis: solid-void composition, horizontal vs. vertical emphasis
	Construction Techniques, Materials and Color Characteristics	Roof types, construction methods, window typologies, buttresses, color schemes, paving materials, landscape greenery, street-defining elements, lighting, signage, street furniture

Street Texture: The residential use of the buildings on Bereketli Street is evident in their adaptation to the sloping slope of the area. The next buildings are situated entirely along the street frontage and side facades of their respective parcels. Figure 2 depicts the presence of little gardens located at the back. Figure 3 shows that the presence of a slope and tight parceling allows for building entrances that directly face the roadway.

Upon examining the residential architecture, it becomes apparent that the topography rises from the north to the south. Along the street, which is flanked by stairs and marks the start of the incline, the buildings form a gradual silhouette that harmonizes with the slope. It is evident that new construction and unskilled additions that are unable to blend with the overall appearance of the street negatively impact its visual harmony. Upon closer examination of the eastern side of the street, it can be observed that the buildings are typically accessed through niches that have multiple stairs. The presence of these niches led to the creation of the entrance eaves at the front of the structure. On the inclined street, which goes from an elevation of +7.65 to +17.30 in the south direction, it is observed that the height of block number 8 fails to align well with the surrounding

buildings. The buildings numbered 6-15, which were constructed after 1970, have a width of 5-6 meters, similar to other buildings. However, their facades show inconsistency in terms of building width, indicating a “free” approach in their design (Figure 4).



Figure 2. Kuzguncuk building-street relationship
Source: Authors (2024)



Figure 3. Building entrances with steps to the street
Source: Öktem Karagül (2024)

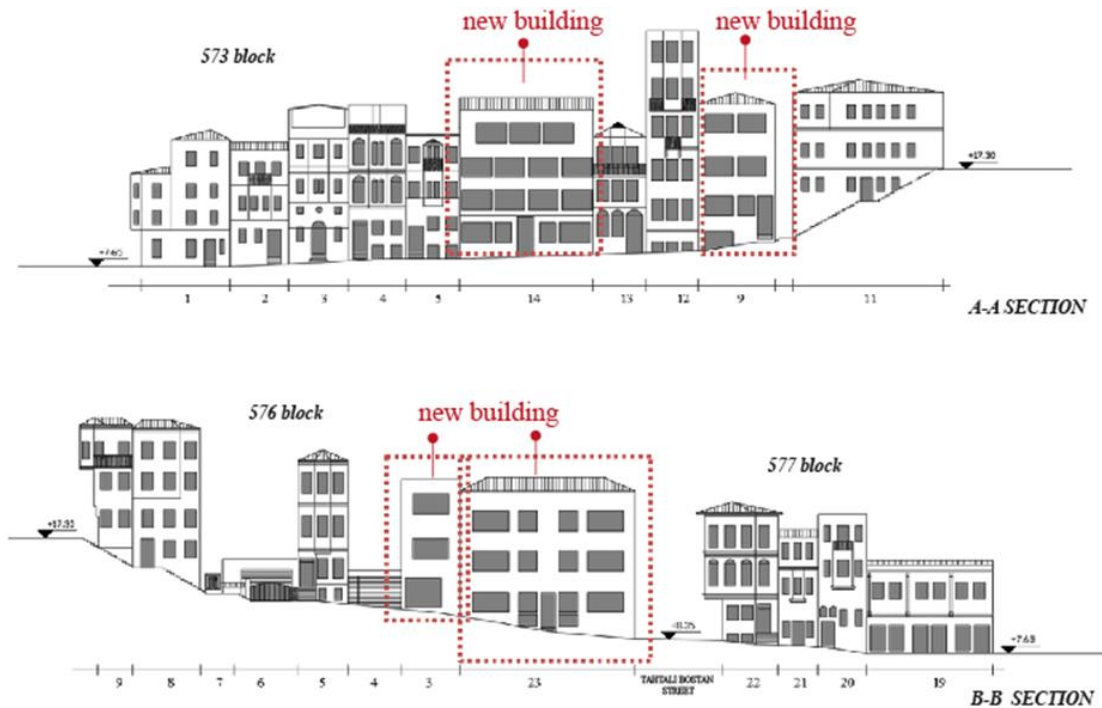


Figure 4. Registered and new buildings on the East and West fronts of Bereketli street
Source: Authors (2024)

Facade Features: The buildings made of wood, situated on Bereketli Street in Istanbul, are a part of the city's traditional residential legacy that has endured over time. These houses feature narrow front facades and two side facades that lean against each other. They are designed with a common inner hall layout, which is typical in Istanbul. Additionally, there are instances where the original plan layout, which had an inner sofa, was extended by incorporating side sofas and wans as needed. Traditional Ottoman civil architecture sometimes incorporated bay windows on the top levels, providing a favorable view of the street. In Kuzguncuk, the positioning of buildings on the plot of land has a significant role in the design of bay windows.

There are three main types of bay windows typically found in this area: flat bay windows, triangular bay windows and three-faced bay windows (Figure 5). On the corner property of Bereketli Sokak, there is a cantilever with three faces. In the other parcels nearby, there is typically a cantilever located in the middle of the facade and these cantilevers are either one or two floors high.

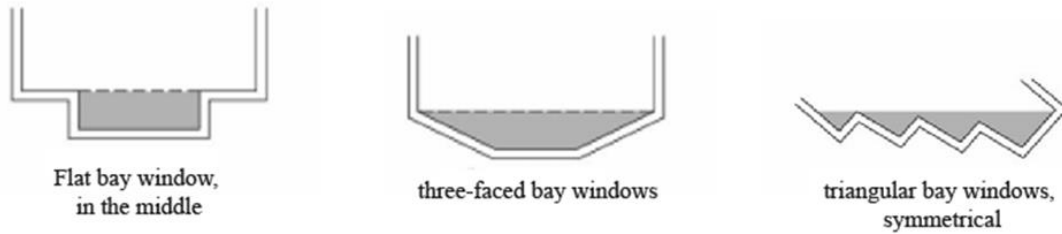


Figure 5. Fertile Street Bay Window Typology
Source: Authors (2024)

Within the context of the historical urban environment, the facades and parcels are interconnected in a specific proportion. The repetition of parcel widths, cantilevers, bay windows and gaps between doors and windows creates a rhythmic pattern. The newly constructed buildings on the street exhibit wider building widths and employ uniform windows. The dimensions and exteriors of newly constructed buildings disturb the arrangement and visual pattern of existing buildings along the street, resulting in the loss of a harmonious and balanced dynamic. The research of occupancy and vacancies on the façade of Bereketli Street reveals a greater occupancy rate. The proportional characteristics of adjacent structures amplify the impact of whole facades.

Simultaneously, the gaps inside the registered buildings generate a symmetrical pattern. It is seen that the new buildings with parcel numbers 14, 9 (573 block) and 6, 23 (576 block) differ in proportion on both sides. It is observed that the window and door openings in new buildings are larger than those in registered buildings, which is incompatible with the texture (Figure 4). When the horizontal-vertical impact analysis is examined, the long and thin window and door headers in the tall, thin registered buildings on the street caused a vertical impact. However, the new buildings on parcels 14, 9 (573 block) and 6, 23 (576 block) differ from the other buildings on the street and the use of large windows caused a horizontal effect. In this respect, it is observed that new buildings differentiate within the texture (Figure 4).

Roof Typology: As a result of the investigations, the traditional buildings that determine the character of the street generally consist of two, three or four-pitched roofs covered with Marseille tiles. These roofs usually have eaves around 70 cm wide. Terrace roofs can be seen on 6 parcels on the street (Figure 2).

Construction Technique: Traditional houses on Bereketli Street often have a wooden frame structure with two or three floors, constructed on a partially masonry basement. Every dwelling is equipped with either one or two brick fire walls. The base levels are designed to conform to the geometry of the street boundaries, while the higher floors extend towards the street with projections or bay windows that are straight, square and polygonal in shape. Some facade cladding on the street is made of siding or jointed boards that are approximately 2.5 cm thick and 25-30 cm wide. Window openings on the facades are generally provided with guillotine windows, approximately $\frac{1}{2}$ in double or triple arrangement. In wooden houses with floor heights of approximately 3.5 meters, a full connection is provided around the lower floor beam on the outer face of the masonry walls under the wooden frame system (Figure 6).



Figure 6. Registered Buildings on Bereketli Street
Source: Öktem Karagül (2024)

Window Typology: Windows are composed of both curved and straight framed sections. Curvilinear framed windows are comprised of either round or flat arched windows. The decorations on the windows also provide insights on the architectural style of the structure. The windows are seen to have either flat or semi-circular arches, as well as windows with flat lintels. As a common characteristic of the street, certain windows on the buildings are adorned with headers and decorative motifs. The placement of the wrought iron railings on the ground floors follows both rectangular and arched jambs. Some classic structures include circular skylights positioned above their entrance doors. The windows along the street are typically thin, long, rectangular in form and adhere to traditional proportions in terms of width and height. This is a result of the small size of the properties. The horizontal width of the rectangular windows in the new buildings on the street is causing a disruption to the overall texture of the street.

Buttresses: The buttress typologies on the street are divided into metal and masonry buttresses. There are mostly two metal buttresses under the bay windows on the street. Metal struts have figurative and geometric features. Under the bay windows that reflect the character of the street, there are also masonry buttresses that reflect the period in style.

Color Features: There are generally buildings from the late 19th and early 20th centuries on Bereketli Street. Although pastel yellow, beige and dark/light gray colors were used on building facades as a practice of the period, it is seen that more colors are used together after today's restorations. Typically, structures utilize pastel shades of pink, yellow, blue, green and beige. The jambs and door entrances, on the other hand, are adorned with beige, gray, off-white and colors that match the façade of the building (Figure 7). Black/white iron and dark/light wood joinery are used in doors, joinery and

buttresses. Joinery in new buildings generally contains white PVC. The materials and colors in these structures are unqualified and careless. It is seen that the facade colors of registered buildings are relatively cleaner and more careful.



Figure 7. Bereketli Sokak facade colors and dominant colors

Source: Authors (2024)

Roads and Sidewalks: One of the most important problems of Bereketli Street is that the road and pavement are narrow and discontinuous. Pavements must be continuous so that pedestrians can move comfortably while walking. Some of the businesses on the street leave their materials on the streets and sidewalks, obstructing pedestrian flow. In the street cross-section, it is seen that they park their vehicles on the road and sidewalk. This situation prevents pedestrian safety and causes the attractiveness of the street to decrease. The fact that the street is open to vehicle traffic damages the registered buildings on the street and the integrity of the street. The stair element, which is the limiting element of the street in the south, is counted as the identity of the street (Figure 8).

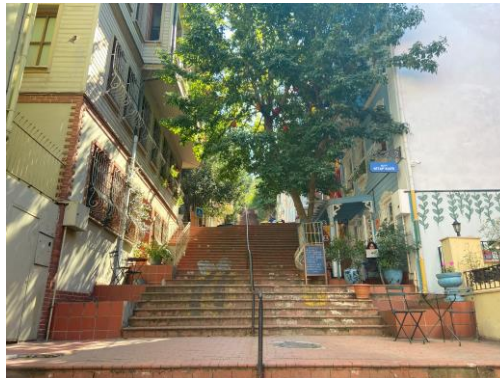


Figure 8. Bereketli Street Limiting Element Ladder

Source: Öktem Karagül (2024)

In conclusion, upon analyzing the historical process and urban texture of Bereketli Street, it becomes evident that the cohesive and rhythmic integration of both the historical and new buildings is crucial for perceiving the street as a unified entity and preserving its identity. Preserving and upholding the mass, form, projection patterns and proportions of well-designed buildings is essential for enhancing the character and value of the street. It has been noted that new construction applications that are out of proportion with the historical buildings on the street damage the texture of the street by distorting the perception created by well-designed facades on the street. Following the analysis of the relationship between the adjacent buildings on Bereketli Street and the street as a whole, it can be observed that historical buildings have consistent building contours along the street, with their upper elevations parallel to the slope. However, in the case of additions to historical buildings and new constructions, this results in a distorted silhouette. Similarly, in traditional buildings, the alignment of floors, proportions of the façade and elevations of upper levels are harmonious. However, in new buildings, the excessive height leads to blind walls on the side facades and results in visual pollution. The architectural features such as closed and open protrusions, floor and roof moldings, jambs, shutters and buttresses, as well as the variations in materials and colours observed in the buildings on the street, contribute to the distinct identity of the area by creating a visually rich texture. However, unqualified interventions, especially in unregistered buildings; Replacing jambs, adding railings, replacing or removing quality joinery with PVC windows and doors, using unqualified attachments and materials and wrong interventions spoil the street silhouette. The disproportionate rise of new buildings and additional floors built-in well-designed buildings and the blind walls formed as a result of the buildings being positioned in front or behind, cause the integrity of the street to deteriorate (Figure 9).



Figure 9. Bereketli Street Current Facade Condition

Source: Authors (2024)

2. Suggestions For the Bereketli Street Urban Design/ Infill Design Guide

During the development of the urban design- infill design guide for Bereketli Street, the primary objective was to preserve the buildings' original traditional features in the face of ongoing transformation. Nevertheless, it is evident that only preserving registered buildings will not be adequate to maintain structural integrity. The primary focus of the study was to determine the proper alignment between the new structures and the existing buildings that need to be preserved.

When evaluating the architectural character and image of the street, ideas were made for additional buildings. Interventions in the historical environment are anticipated to be reintegrated into the urban landscape in accordance with present-day requirements, incorporating new structures, functions and contemporary enhancements. Regarding this matter, we will analyze the interventions to be made to the historical structure, categorizing them into two headings. According to Yıldız;

- New building application (infill) to be made on vacant parcels in urban protected areas or unregistered building parcels in the protected area.
- Contemporary addition in the historical texture (contemporary additional structure or contemporary architectural element in case different functions are included instead of the original function in the historical structure) (Yıldız, 2011).

The guide for Bereketli Street featured recommendations for new structures that are not in harmony with the historical context identified in the analysis. These proposals are referred to as “infill”. The new building must prominently exhibit its era and establish its integration within the surrounding historical setting. In this regard, the basic principle has been that the new building should create a neutral façade effect within the traditional texture, without obstructing the historical building. In this way, it was aimed for the new structure to reflect its own period while ensuring texture integrity. In this direction, suggestions have been developed for the silhouette, number of floors, plan, facade and roof typology according to the texture, architectural style and identity of the street.

2.1. Suggestions for Facades

The windows of the buildings on the street consist of straight lintel windows and curvilinear arched (recessed and semicircular) vertical sliding system windows. Most of the windows have upper-headed jambs. In well-designed buildings on the street, the window aspect ratio is generally between 1/2 and 1/1.4. While it is recommended to maintain these proportions in new buildings, window forms are left to the designer's choice. When choosing window materials, it is recommended to choose products like the original materials and colors of qualified buildings. Access to well-designed buildings in the area is generally provided from the street front, from the right and left side of the building and in a few buildings, from the middle. In new buildings, the entrance doors will be single-winged or double-winged and the location and direction of the entrance are left to the designer. Wood, metal and glass materials were mainly used in the doors of registered buildings. These materials are suggested for use in new building designs and are ultimately decided upon by the designer. Entrance door ratios in new buildings close to well-designed buildings should be limited based on the entrance door ratios of the qualified building. Typically, the buildings in the neighborhood have a direct entry from the street. Due to the elevated basement level in the sloping areas of the street, the majority of building entrances are equipped with staircases rather than level entrances. The design of new buildings should ensure that the steps do not extend beyond the

boundaries of the parcel. Arrangements must be provided in compliance with the regulations for disabled users at the primary entrances of the building. The cantilevers and bay windows on the street extend beyond the parcel boundaries from the street front. However, the designs explicitly prohibit any movement or expansion beyond the designated parcel borders, whether the area is open or enclosed. In line with the guidelines, bay windows can be incorporated into new building designs on Bereketli Street, where 1/2 of the buildings have well-designed facades featuring bay windows. These bay windows can extend beyond the property boundaries towards the street, maintaining the street's unique character.

The minimum width of the street between bay windows must be 6 meters. Therefore, if there are bay windows in new buildings that are directly across from each other, the width of the street shall be a minimum of 6 meters. Protrusions and bay windows should be constructed on the exterior walls of the structure, maintaining a minimum distance of 1.5 meters from the adjacent walls. The optimal width for bay windows is from 1.5 to 3 meters, while the depth should not exceed the width of the adjacent bay window and should be no more than 90 cm. Bay window configurations can be created in several forms, such as single-sided, double-sided or centrally positioned, with polygonal, triangular or quadrilateral shapes. These designs can be implemented regardless of the architectural style of the surrounding buildings on the street. Bay windows can be constructed on either one or two floors. In other words, when selecting colors and materials for building facades, it is advisable to choose from a palette of colors that are slightly lighter or darker than the colors of well-designed buildings. It is advisable to use strong and modest color tones for the exterior colors of newly constructed buildings along the street. When facades are constructed using natural materials such as wood, terracotta, concrete, etc., it is advisable to maintain the material's original color.

2.2. Suggestions for the Heights of Buildings

According to the criteria obtained from the examinations and analyzes of the entire area, if the number of floors in the new building is more than the number of floors in the registered building adjacent to it, it is recommended to build a mezzanine floor in the direction of the registered building by staggering. In cases where staggering is required, the width of the stepped part of the structure should be 1/3 of the width of the new structure. The width of the stage line in the new structure should be maximum 5 meters (Figure 10).

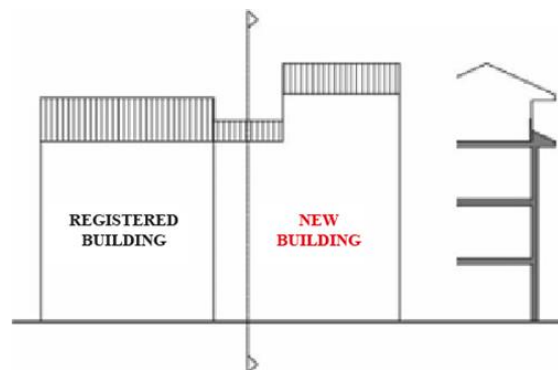


Figure 10. Grading in the New Building Adjacent to the Registered Building
Source: Authors (2024)

In the registered and new building parcels on the street, the buildings are generally located adjacent to each other without a front garden, leaving a small garden at the back. In this direction, a structure that will be compatible with the existing texture has been proposed for the new buildings to be built. Buildings that were properly registered and designed were left without supervision and the original designs were intentionally damaged to accommodate the preferences of the users. This resulted in circumstances such as sealing the terrace or building additional floors, which ultimately compromised the integrity and character of the structure. To mitigate this scenario on Bereketli Street, regulations have been implemented to monitor and limit the height of buildings and the elevations of their eaves on the facades. If both the registered building and the new building adjacent to it have an equal number of floors, it is necessary for the heights of the floor moldings in the new building to be in accordance with those of the registered building. The height of the new structure must not surpass the height of the registered structure (Figures 11 and 12).

2.3. Buildings Recommendations for Bereketli Street

Due to the street's adjacency and narrowness, there is insufficient room for expansive greenery and urban furniture. However, both resting areas and plant features can be incorporated on the street stairs, as seen in Figure 13. Given the street's position, it is possible to provide directions to the nearby mosques, churches, parks, green areas and Kuzguncuk Gardens using modest signs or ground paintings, as illustrated in Figure 13. Given the limited width of Bereketli Street, pedestrians should be given priority, while vehicles should only be permitted to enter the street during specific time periods. The disparity in the elevation between the sidewalks and the road should be removed and a level pavement should be created to ensure unrestricted movement for pedestrians and people with disabilities. In order to avoid visual confusion on building facades in areas where residential functions are concentrated, understandable signs of minimum size and number should be designed for the name of the apartment or shop. The signboard, awning, showcase and shutter arrangements in the residential and commercial buildings located on Bereketli Street are incompatible with the structure they are located in. This situation also causes visual pollution on the ground floors, where pedestrian perception is highest. Instead of signs mounted on building facades, it is recommended to use hanging signs that can be perceived more easily from a distance. Acquiring the expertise of professionals is crucial when it comes to designing lighting and signs lights.

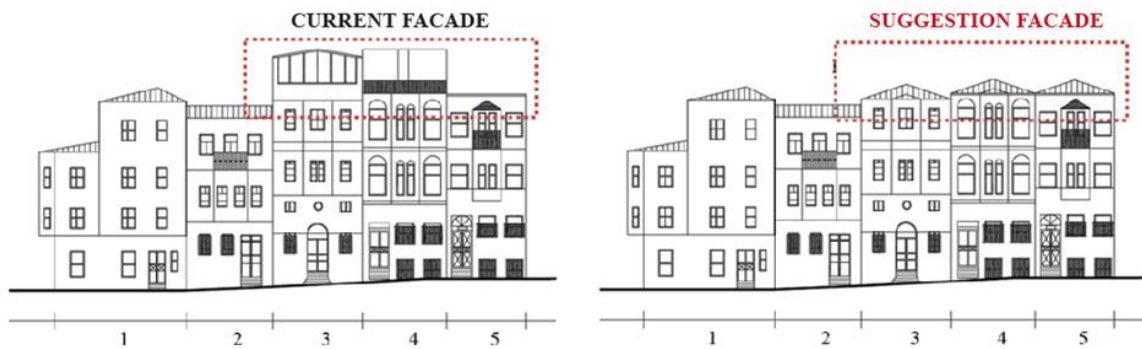


Figure 11. Bereketli Street Building Elevation and Eave Elevation Suggestion
Source: Authors (2024)

3. Discussion

A primary challenge in urban settlements globally, particularly in densely populated and economically vibrant cities, is the reconciliation of the socio-cultural and spatial topography inherited from history with contemporary developments, ensuring their integration without conflict or division. The reports submitted to the General Assembly of the UNESCO World Heritage Committee in New Zealand in 2007 indicate that urban issues are prevalent in this context. 40% of countries highlight the detrimental impacts of urban development and regeneration initiatives, encompassing substantial urban infrastructure projects, modern design and skyscrapers (Van Oers, 2010). Türkiye, particularly Istanbul, is seeing a rapid deterioration of its ancient fabric. The primary aim of the study was to ascertain the principles of innovative construction methodologies within a conservation zone. In a texture predominantly composed of protected structures, newly constructed edifices lacking foundational principles adversely affect the silhouette and compromise the integrity of the texture. A vital prerequisite for constructing and cultivating social identity is the preservation of cultural heritage sites. In this framework, urban design guidelines for cultural heritage sites serve as complementary planning instruments for design and implementation in these regions. However, the imperative of formulating urban design guidelines tailored to a particular locale necessitates, primarily, a systematic definition of the urban design process aligned with the established vision and objectives, overseen by a multidisciplinary team and inclusive of all pertinent stakeholders in the process.

International conservation groups like ICOMOS and municipal entities in metropolitan areas assert that historic urban landscapes are in risk of losing their structural and visual authenticity and integrity. This circumstance is perceived as a menace. In this regard, UNESCO endorsed the “Historic Urban Landscape Recommendation” (HUL) on May 7, 2012 (URL 3). This decision states that the “Historic Urban Landscape Recommendation” does not supplant existing conservation conventions; rather, it is intended to serve as a tool for integrating the policies and practices of historic environment protection with the primary objectives of urban development (URL 4). The decision acknowledges that urban heritage is a significant public policy concern, highlighting that cities face development pressures and challenges due to demographic shifts, global market liberalization and its expansion from central to peripheral areas, mass tourism, heritage commodification and climate change impacts. The decision seeks to safeguard and enhance the quality of the human environment in both public and private sector developments. It posits that these efforts ought to be aligned with the primary objectives of sustainable development. The decision advocates for an expanded approach to the identification, protection and administration of historical places. A “landscape” approach is advised, including the interrelations among physical forms, spatial configurations and connections, natural attributes and sites, as well as social, cultural and economic aspects. This methodology encompasses policy, administration and management concerns engaging diverse stakeholders, including local, national, regional and worldwide public and commercial entities in the urban development process, hence enhancing the “holistic conservation” approach of 1975.

New interventions in the ancient urban fabric are unavoidable. Nonetheless, a crucial prerequisite for these interventions is to comprehend the culture and requirements of the local populace and to collaborate with the local stakeholders. Historical housing textures are dynamic and necessitate adaptation to the evolving demands of their

inhabitants to ensure development and sustainability. The challenge of constructing new edifices inside the historical context lies in honoring the historical and environmental attributes of the adjacent urban texture, alongside the cultural traditions, economic conditions and social dynamics of the inhabitants (Imam, 2013). UNESCO asserts that the Historical Urban Landscape fosters societal growth and peace while safeguarding heritage elements in the context of sustainable development. It emphasizes the synergy between the new and the old. The significance of these interventions is in creating a spatial relationship between the new and the old, while honoring the authenticity and integrity of the historical fabric and architectural inventory. The Historical Urban Landscape addresses the dynamics of economic development while comprehensively maintaining both the tangible and intangible qualities and character of a place. Consequently, there exists no methodology that favors the new over the old or entirely preserves the old while dismissing new advancements. As urban areas evolve, the objective is to harmonize modern architecture with landscape integrity. Interventions to the historical environment must be meticulously planned and designed. In planning these interventions, the new structure must harmonize with the typology and morphology of the historical environment, respect the landscape order and preserve the historical urban texture, shape, original character and significance. At this juncture, the designer's responsibility is to guarantee that the new architectural form harmoniously coexists with the historical context, while respecting current values and preserving its authenticity. This is a fundamental prerequisite for maintaining the cultural continuity of urbanized spaces (Taraszkiewicz *et al.*, 2022). Another significant issue highlighted is the formulation of urban design guidelines, with a focus on the dimensions and elevations of newly incorporated architectural features. Urban vistas, rooftop perspectives, principal visual axes, building parcels and architectural typologies are essential components of the Historical Urban Landscape character and must be rigorously safeguarded. The ratio and design must align with the historical fabric and architecture. To maintain this integrity, new building guidelines are crucial in establishing the design principles for new constructions that support the sustainability of the historical texture examined in the study.

4. Conclusion

The primary goals of guides in the historical environment are to safeguard the historical urban texture and heritage values, enhance the quality of life by facilitating daily activities, establish pedestrian and transportation arrangements, foster urban vibrancy and secure environments, reinforce the link between the past and the future, establish easily navigable and accessible spaces and promote the creation of distinctive designs. In planning studies from the upper scale to the lower scale, it is crucial to comprehend the texture, essence and physical attributes of the space in order to achieve good design. According to Görgülü, the analysis of the historical texture should include the following headings:

- Demographic and social indicators in the past, present and existence of the historical texture,
- Registered and monumental works in the historical texture, functions, number of floors of the buildings, parcel sizes and shapes, silhouette formed by the buildings, occupancy-vacancy ratios (windows), architectural features of the buildings (Görgülü, 2015).

Once all of these research studies are conducted, the design characteristics of the new structures will become apparent in terms of their utility, contour/gauge and mass. Urban design studies are necessary for the planning and development of public spaces, including squares, parks and pedestrian walkways (Görgülü, 2015). The primary objective of this study is to uncover and safeguard the essence of the street, guiding the construction of new buildings to harmonize with the existing surroundings and maintain its overall cohesion within the district. The study primarily focused on determining the spatial principles for the new building, neglecting social indicators and users.

The investigations conducted in the area, including settlement analyses, façade analyses and street/silhouette analyses, have revealed the architectural structure and historical significance of the location. The proposal design guide was produced based on the analyses conducted. An analysis was conducted to identify the strengths, weaknesses, opportunities and threats of the street. Based on this information, “principles” were established to serve as guiding principles for the street. The guide, developed in accordance with the principles, offers suggestions that provide guidance to the designer while allowing for creative freedom.

Urban design and planning are concepts that are interconnected and need to be considered as a whole. As Aydemir states, when design guides and planning studies are carried out in parallel, significant contributions can be made to the development of an urban texture with identity. In this context, the relationship established between the planning system and design guides is of great importance in terms of reflecting and ensuring the integrity of approaches that include local cultural and physical values. It is important that “Urban Design Guides” have been made mandatory in order to ensure harmony between old and new buildings in the historical urban environment. Nevertheless, it cannot be asserted that the guides have been fully included into the planning system at the intended level as of now. However, in order for the urban design guide to be successful, it is imperative to ensure that it aligns with the policies of the upper-scale plan. From this standpoint, recommendations have been put out concerning the maintenance of street and texture quality, guided by the notion that “Urban design guides should serve as the bridge between planning and architectural design” (Aydemir, 2004).

Urban design guidelines should be formulated in alignment with preservation strategies. Demonstrating the implementation of decisions made by silhouette and similar studies is crucial, particularly in places with specified height and construction regulations, especially in locations of significance, such as Kuzguncuk, where topography plays a key role. The zoning plan for Kuzguncuk specifies a floor height of 6.50 meters. While the height specified in the design assures that the new building is in line with the height of existing registered buildings, it is not enough to maintain the overall integrity of the street. Comprehensive information regarding the height of the building, roof height and shape should be provided with detailed plan notes. Supplementary urban design guides should provide guidance on the design specifics of new structures to be constructed on the street, in addition to the existing plan. The guide provides recommendations for new building designs, including proposals for silhouette, contour and scale that are appropriate for texture. It also offers suggestions for facade gaps, as well as color and material alternatives. However, rather than establishing the specific shape of the design, its purpose is to assume a more practical function by directing the design process.

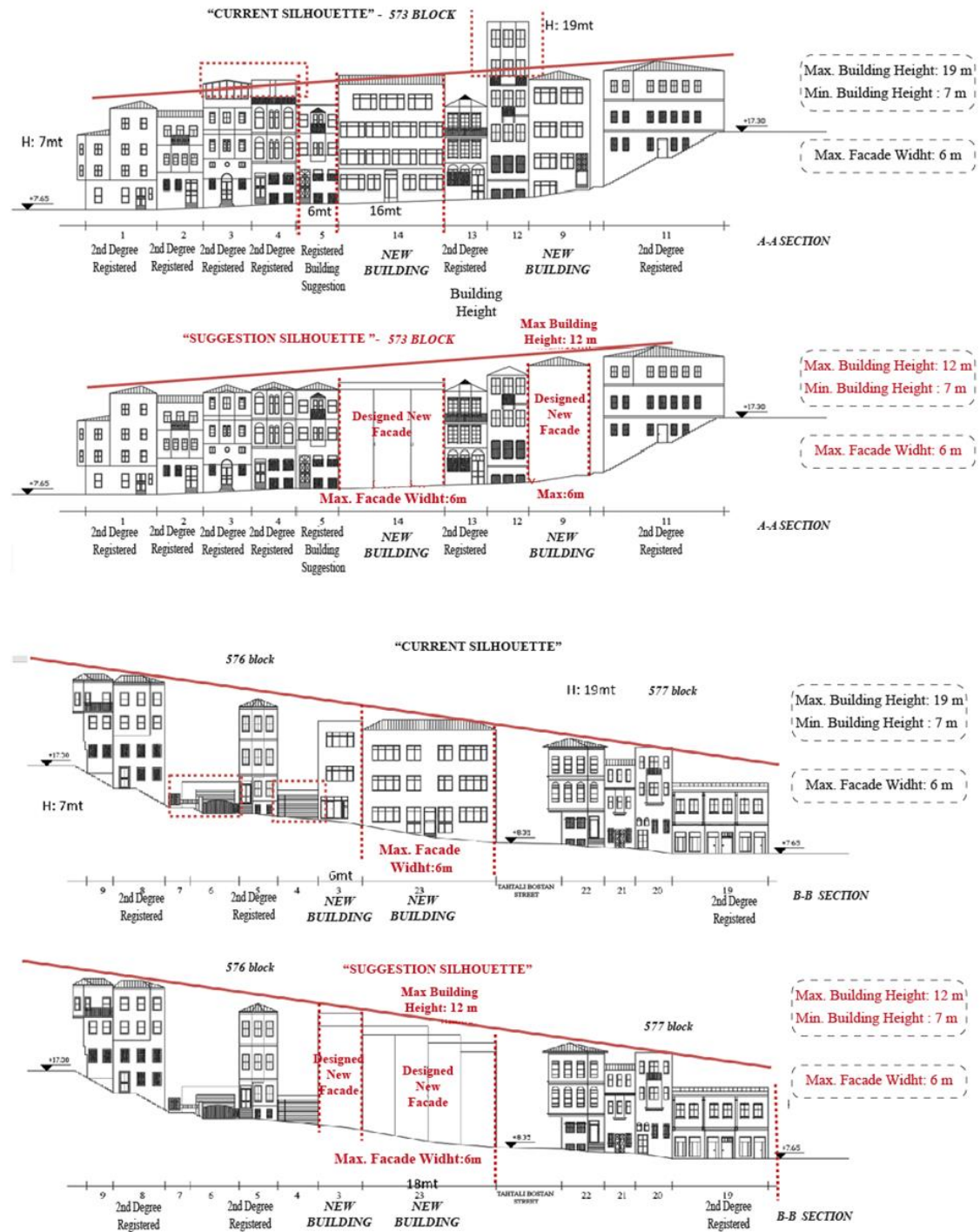


Figure 12. Recommended Building Heights and Levels for Bereketli Street
Source: Authors (2024)



Figure 13. Examples of seating areas and routers
Source: Öktem Karagül (2023)

Guides should oversee the development process of the workplace and facilitate collaboration among actors using design controls. Establishing institutional discussions, soliciting expert opinions and ensuring local engagement are crucial. For the guide to achieve success, it is crucial that the local government adheres closely to the design process and fulfills the monitoring/supervision phase. Simultaneously, in the monitoring/auditing phase, it is crucial to consistently assess its alignment with the design principles and objectives outlined in the initial section of the guide. To preserve the original historical contexts for future generations, it is necessary to create documentation using a variety of images, videos and texts and to explore possibilities for reuse. By following this approach, we may implement crucial measures to save our urban heritage and transmit it to future generations.

Endnotes

1. Several historically significant buildings, including Kuzguncuk Pier, Kuzguncuk Mosque, Ayios Georgios Greek Orthodox Church, Surp Krikor Lusavoriç Armenian Church, Beth Yaakov Synagogue, Ayios Pantelemion Church and Holy Spring, Simotas Apartment and Marko Pasha Mansion, are situated in close proximity to one other. In Kuzguncuk, there are several notable places including a Muslim Cemetery, a Jewish Cemetery, a Greek Cemetery, the Kuzguncuk Gasworks and a public garden.

2. Although not included in this study, Bereketli street and its surroundings were determined as the study area as a result of upper-scale spatial analysis studies throughout Kuzguncuk. The area largely consists of buildings that need to be preserved, but it was seen that the buildings adjacent to these buildings were incompatible with this preservation and the question of what the new building criteria on this street could be if they were reconsidered was discussed in this study.

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