

A STUDY OF PAVEMENT MATERIAL USED ON MAIN TRANSPORTATION ROUTES OF TRABZON CITY

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Abstract

Urban pavement materials show variety because of growing population, changing technology, material options and changing life condition, social and cultural values of the time and materials which have functions and conditions of natural environment. Cost of the materials, availability and physical properties influence preference of the materials. The aim of this study is to research the change of urban pavement character from the 1900s to present in Trabzon city; put forward the conditions in different time periods; and determine the fact that the change in time and setting can fulfill the needs appropriately. Towards explaining the historical progress of ground coverings and its role in design, the photograph analysis was carried out and the historical process was evaluated in a way that can present the relations of ground covering with spatial identities. As a result of these evaluations, the change in the function and aestheticity of the ground in accordance with some needs in the course of time is being introduced. In this study, Trabzon city is dealt from past to today, flooring materials used in cityscape design is examined in terms of design criteria, by dealing the field of study that gives identity to the city on four main shafts, two as traffic routes, two as freed of traffic pedestrian ways, with the intent of presenting the past, carried value and properties of these four areas in the past, the change they undergo and what this change brings are studied, suggestions are made for better applications. The study area is studied mainly on four main axes. With the intent of enlightening the past, past values and properties of these four areas, the change and different design materials and suggestions are made for future applications. For seven different area groups that are determined existing due diligence is done and pavement material variety that are applied in these areas is presented.

Key Words: Historical urban streets , pavement materials, Trabzon city, urban open spaces, urban pavements

1. Introduction

Trabzon city has an important structure as natural, historical, archaeological, cultural and touristy aspects in the Eastern Black Sea Region. Trabzon is a significant transit center because of being located on the Silk Road since ancient times. Because of these properties, Trabzon is the largest shopping and commercial center of the region. The most effective tourism activity of Trabzon is cultural tourism. The city, has existed as a settlement since BC 2000, therefore has many historical remains of Roma, Byzantium and Ottoman era. When an urban area is evaluated in terms of its spatial and functional characteristics, the architectural features of the city, it's social, economic, and cultural values should also be evaluated. Trabzon was examined from physical and socio-cultural aspects as well as history of the city, it's location, population, climate, geographical structure, tourism and potential cultural heritage, socio-economic status.

When we look at the development of the city, it shows a linear growth along the state highway, parallel to the coast. One of the most important causes of this kind of settlement is that the sea forms a natural barrier and that rising topography to the South acts as a natural border. Another limiting factor in growth is valleys. Tabakhane and Zağanos Valleys on both of sides Ortahisar, the city's old center, and Değirmendere Valley on the East are the most obvious edges. In this study, Trabzon city was approached from a past to present perspective and urban pavement materials, used in urban landscape planning, were examined in terms of design criteria. The study area consists of two pathways and two traffic roads situated on the four main transportation routes. Values and characteristics possessed by these four study areas, changes and its results were investigated in order to shed light on the past and reach the best landscape applications. Tabakhane and Zağanos Valleys on both sides of the historical city center Ortahisar and east Değirmendere Valley are the most obvious boundaries. Another important fact that defined and formalized urban development is city center.

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Former city center of Trabzon, Ortahisar has been replaced by Meydan with its neighborhood and three main streets namely Uzun, Maraş and Kunduracılar Streets, extending paralel to each other. The transportation routes of the selected study areas as Meydan and its neighborhood and Uzun Street, Maraş Street and Kunduracılar Street have ground covering materials which provide on identity for the city and determine its characteristics. The urban pavement character and its design are important for the definition of visual and functional usage features. The selected study area was divided into 7 different categories as Management areas, Institutional fields, Transport areas, Public spaces, Historical sites and Religious areas. 7 different groups and 48 sub-group were evaluated through a comparative analysis of the photos taken at different time periods to obtain change of usage and function of the urban pavement character. Graphics for the categories, which were evaluated through the date acquired, were formed. Photo analysis of urban pavement materials used in functional and changing aesthetic properties was done in order to determine their historical development, design and spatial identity relationships of the urban pavement materials and the historical process was evaluated. The first findings of the study are change and preferability of the urban pavement character in historical process and decisions in application process.

The subjects to be investigated through this research are the changing soil conditions and features depending on the time, the preferability of soil conditions in the historical process and the decisions taken during the implementations. When an overall evaluation is carried out, it can be said that natural stone platters that were directly laid on the ground in pre-republican period had contributed to the establishment of a natural view. In the post-republican period when the use of automobiles became widespread the endurance and resistance against pressure came to the foreground as a component not to be ignored in floor covering. Since people are in mutual interaction with their environment, they renovate themselves continuously to fit any purpose and this renewal has become the main element that forms, expanding of cities into broad areas along with Industrial Revolution, a new structure format in regard to conditions of industrial production, sheltering and transportation issues, modern urban environment, starting from the west. As a result of these actions, in the world and in our country, as it can be clearly seen in various cities, many significant features related to the city are lost.

Finally, within the scope of historical continuity, environmental characteristics and environmental identity are disrupted and humanistic scale is lost (Velioğlu, 1994). With a well planning, it is possible to make cities livible. Urban planning is a balance between sociable, aesthetical, functional and ecological requirements and preferences. In spite of floor coverings are important factors in landscape designing, they constitute the backbone of landscape plans (Seçkin, 1997). When defining floor covering, that is, for what purpose it will be used. The first condition of being usable is that the floor covering is selected and applied in a suitable purpose (Berksun, 1976). Yücesoy (1998) describes floor coverings as elements that form the ground planes of a planning or as important design elements that are paved atop of floor and any kinds of function can be done on. Due to their aims, thinking and creating abilities, people change in time, depending on people, societies, culture of people and societies. Therefore, people's actions based on their aims are also wide ranging and space-variant. According to Poete's theory of persistence plan features may be changed and deformed but its original remains the same. One of the assumptions underlying this theory is that city is an artificial environment and the other one is that its history is partially perceivable (Dülgeroğlu, 1995). Historical environments and hence the identities of the cities are changing negatively, a complex and eliminative, difficult to perceive environment, also in terms of society, is constituting, ancestral values, meanings and symbols that historical environments add to the areas, cities where they are located are gradually becoming vague and even disappearing (Sözen, 1990).

While these environments having historical texture are contributing to the countries where they are located, in economic and socio-cultural terms, they also present signs of ancestral architecture, social, economic, technologic, cultural and suchlike data to the society (Ergüney, 2001). As a result of putting the historical environments of secondary importance amongst the new structuring, perceiving them becomes difficult and they become passive within the city (Sözen, 1990). In this case, taking the harmony of floor covering materials into consideration with historical texture and environment, depending on where they will be applied and so, ensuring consensus, making legibility of cities easier by creating continuity are topics that should not be ignored. In accordance with these statements, in this study, casting light on the floor covering materials which are applied in Trabzon city that has a historical identity, from past to present, presenting the change and what change have brought, determining the success level of the applications and the factors that affect the applications, are aimed. In this study, Trabzon city is dealt from past to today, flooring materials used in cityscape design is examined in terms of design criteria, by dealing the field of study that gives identity to the city on four main shafts, two as traffic routes, two as freed of traffic pedestrian ways, with the intent of presenting the past, carried value and properties of these four areas in the past, the change they undergo and what this change brings are studied, suggestions are made for better applications.

2. Spatial development of the city

We see the first Turkish districts that are originated again at the whole of the current Ortahisar, partially Pazarkapı and Çarşı in A.D 2000 – A.D 50, Çarşı, Kemer kaya and İskenderpaşa in A.D 50 – A.D 395, Hızır bey, Gülbaharhatun in A.D 395 – A.D 1204, Yenicuma and Cumhuriyet districts in A.D 1204 – A.D 146, after A.D 1461 at the area where Gülbahar district's south region and Erdoğan district's north region combine in the Ottoman period. (Özbilen, 1997). In between 1800 and 1900's the whole of the Gazipaşa district, certain parts of Cumhuriyet and Çömlekçi no. 1 districts, in between 1900 and 1923's certain parts of Boztepe, Ayasofya, Kavakmeydan, Yenicuma and Erdoğan, it is seen that the development of settlement in Republic of Turkey period after 1923 is towards Boztepe, Ayasofya, Yenicuma, Kavakmeydan, Kurtuluş, Yalı, Bahçecik, Çömlekçi and Zafer districts (Özbilen, 1997).

2.1. The change in urban open spaces from 1923 until today

In Trabzon, primarily Uzunsokak and Kunderacılar Street with Maraş street that was put into service during World War One and The Square draw attention (Çapa ve Çiçek, 2004). Uzunsokak, as it is today, was one of the Trabzon's busiest streets also in the previous periods. This narrow street that goes back to Kavak Square has both sides surrounded with trading houses, institutions, schools (Çapa ve Çiçek, 2004).



Fig. 1. Uzunsokak (1930 and after) (Kardeş, 2006; Sümerkan, 2008; Bölükbaşı, 2006)

In advance of 1921 regional election, a newspaper reader named Kamuran penned an article describing infrastructure where the city is located and despite the fact that the Square market forms a busy main line street that is used by all civics, villagers, guests and pass-byers, its stones are removed and got loose and it is a path where, at some of its parts there is nothing, it has downhill, slopes, potholes where rainwater accumulates, like a sea of mud. Even though parqueting of the street at the west side of The Square Park in 1924 started; slow progress of the operation caused complaints to form again (Çapa ve Çiçek, 2004).



Fig. 2. The Square (1930, 1940, 1950 and 1960's) (Kardeş, 2006; Sümerkan, 2008; Bölükbaşı, 2006)

There are many shops, tailor's workshops and one movie theater at Kunderacılar Street (Çapa ve Çiçek, 2004).



Fig. 3. Kunderacılar Street (1900 and 1930's) (Kardeş, 2006; Sümerkan, 2008)

Zağanos (Atapark) also was Trabzon's one of the most well-known squares. Zağanos Square was the first and the last meeting location for public demonstrations held during the National Struggle period (Çapa ve Çiçek, 2004).



Fig. 4. Atapark (1910's) (Kardeş, 2006)

The location where the water, which is brought to the city, distributed, later would be called "Taksim" among the community (Çapa ve Çiçek, 2004).



Fig. 5. Taksim Square (1950's) (Kardeş, 2006)

Zağanos Bridge, links Zindan Gate and İmrate Gate, between Ortahisar and Atapark localities. At the bridge piers, craftsmanship from Roman and Byzantine era is seen (Karpuz, 1993).



Fig. 6. Zağnos Bridge (1930's) (Kardeş, 2006)

Ortahisar, where the state house is located in constitutional period, appears as a district that mostly civil servants live in (Çapa ve Çiçek, 2004).



Fig. 7. Ortahisar (1960's) (Kardeş, 2006; Sümerkan, 2008; Bölükbaşı, 2006)

2.2. Planning Date of the City

Planned Period Development: In Turkey, Municipal Administrations in modern sense started to being formed according to 1846 Province Regulations. In the first Trabzon Provincial Annual that was published in 1869, municipal administration took place (Trabzon Municipality, 2009).

In the Republic period, to put the urbanization in the country into order and to govern it, instead of the 1882 dated Enbiye Law published in Ottoman period, 2290 numbered Construction and Road Law was published in 1933 (Özbilen, 1997). To provide construction activities, planners from Germany and France were invited. French planner Lambert who come to our country for planning works, later would be assigned for construction plan work of Trabzon and Erzurum (Tekeli, 1980).

Depending upon 1939 Final Report created by Lambert, Urban Arrangement Program consists of 7 main topics (Trabzon Public Works and Engineering, Lambert 1939 Plan of Trabzon Final Report): 1- Examination and circulation of roads 2- Public services 3- The division of the city's development direction 4- Green fields, gardens, parks, sanitary and aesthetic areas 5- Protection of ancient monuments and programming of the new 6- Urbanism direction and regulation 7- Exercise program of the plan. Rapid urbanization process that was started in 1950's in our country, created the need to make new legislative regulations on construction plan production and application methods (Duyguluer, 1989).

Development structure of Trabzon city forms a structuring concentration texture at the edges. Increasing of trade activities in the city provides transit trade to grow and concentrated use of state coast road (Özbilen, 1997). Coast road is opened to traffic as a state road in 1966 (Trabzon, 2006). Construction of Tanjant road started in 1985 by 10th Regional Directorate of Highways, completed in 2005. Putting Tanjat road into service also contributed urban development to a considerable extent (Trabzon, 2006).

When we take a look at the Trabzon's urban development, throughout the state highway that is located in parallel with coast, it is seen that the city shows a linear development. Impact of natural restraint at the city's north to be sea and increasing of topography towards the south, right after the sea, to create a natural threshold is major for the development to occur in this direction.

Valleys are also another factor that restricts the development. Tabakhane and Zağanos valleys that are at both sides of Ortahisar, which is the old center of the city, with Değirmendere valley at the east, are the most significant thresholds (Özbilen, 1997). In today, Tanjant and Coast Roads are the alternative roads leading to the main arterial road. Defining and shaping the urban development other main factor is the city center. At first, it is seen that the center develops throughout the old main transportation artery, afterwards moves towards other roads that take the main transportation artery task (Özbilen, 1997). Trabzon city center moved from Ortahisar to The Square and towards Uzun Street, Maraş Street and Kunduracılar Street located parallel to each other.

3. Material and Method

The Square Park and its surroundings that come to the fore as areas where the change of flooring materials used in urban settlement of Trabzon, in historical process, is significantly sensed, Kunduracılar Street, Maraş Street and Uzun Street, that are consecutively sequencing and parallel to the sea, located in the center of the city and are the witnesses of many social, cultural, and historical events from past to present, and as for today, featured as significant trade and urban transportation axes, Ortahisar, which gave service as historic city hall and Trabzon Governorship and its surroundings, form the boundaries of the study area of status hall.

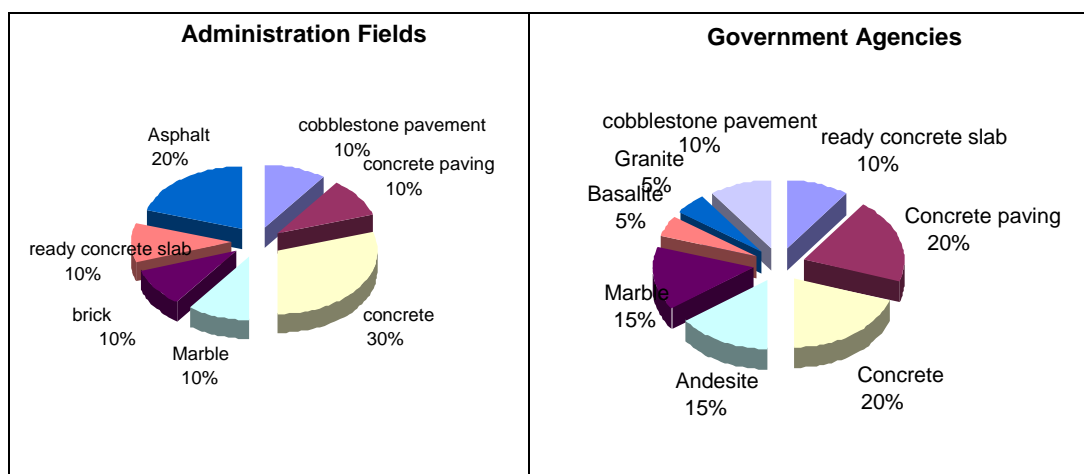


Fig. 8. Field of study, Trabzon city satellite image

With the purpose of determining the physical and functional properties of flooring material in the fields of study, field operations are done, photographs that are taken in different years from 1900's to today are evaluated and analyzed via interpreting. As for today; flooring material variance in current situation is presented. In this study, in the area of Trabzon city which is chosen as the field of study (The Square Park and its immediate surroundings with Kunduracılar Street, Maraş Street and Uzun Street transportation axes), determining visual and functional usage properties of floor covering characteristics and compositions that gain importance as factors which give identity to the city and identify the characteristics of the city, presenting the state of floor coverings in current situation and the relationship of floor characteristics with change, is questioned in terms of historical process from 1900's to today. Areas located at the hall that is specified as the field of study are evaluated in seven different categories as Administration Fields, Institutive Fields, Transportation Fields, Public Fields, Historical Fields and Sacred Fields. Each category is divided into its subgroups.

4. Findings

To present the usage of floor covering characteristics at seven different field groups and 48 subgroups and the temporal change in the direction of the function they undertake, a research, based on comparative analysis of the photographs taken in different periods of time, is planned. In this study, the first identifications to take into consideration, floor characteristics and properties that show temporal changes, preferences of floor characteristics within historical process and decisions taken within the application period form the topic titles under discussion. With this study, justifications and marks of this change are attempted to be searched by questioning the flooring materials, which have different shape, texture, color, size and material variance, exist in the fields of study of Trabzon city, within the historical process.



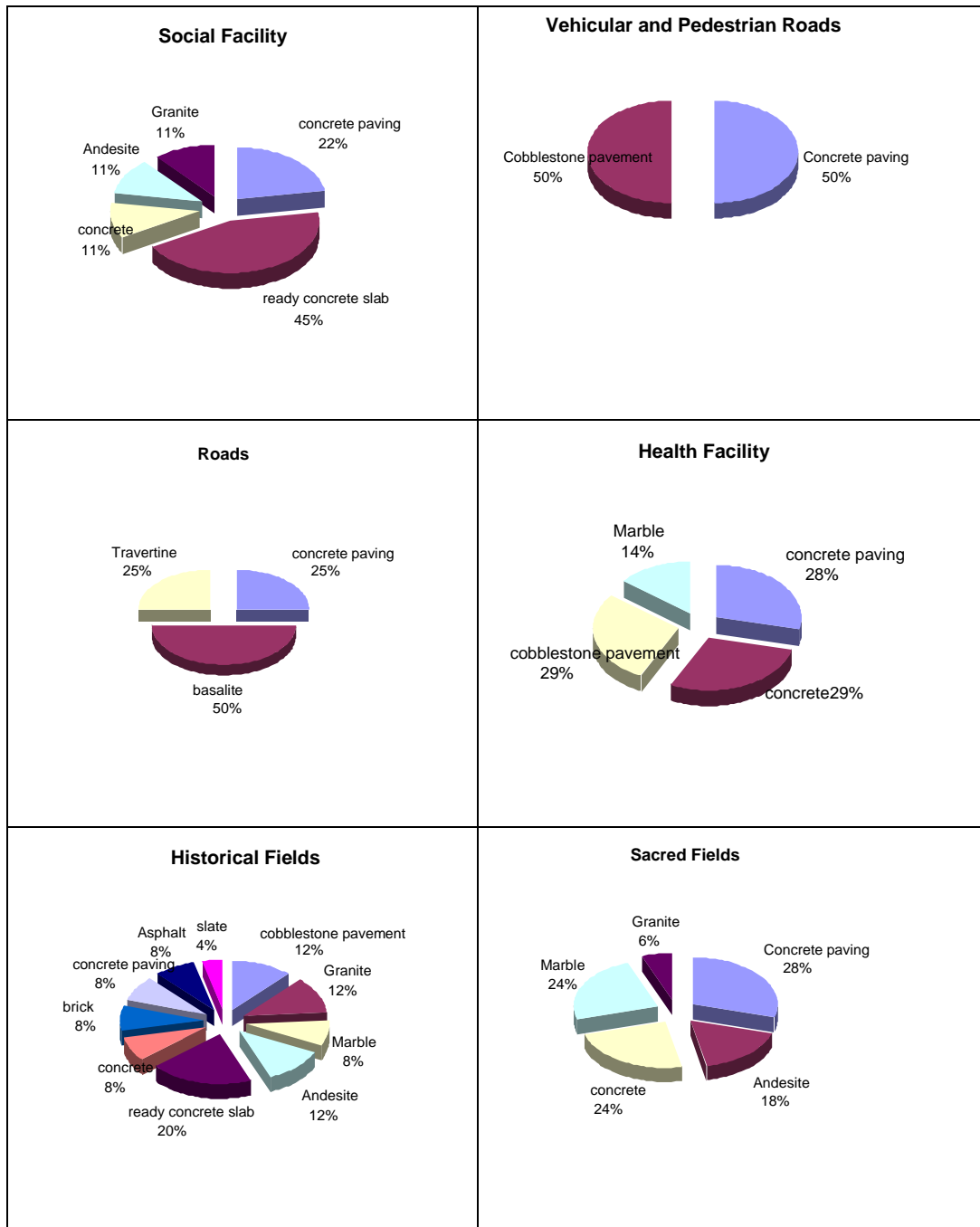


Fig. 9. Physical Data Regarding Fields

While concrete floor covering is mostly preferred at the administrative fields, it is detected that at the parking lots, asphalt is mostly used. It is detected that at the government agencies, as floor covering, concrete paving block, concrete, marble and andesite are preferred to use. As for social facilities, it is detected that mostly concrete paving block and ready concrete slab paving stone is used. At transportation fields that are reserved for pedestrian and automobile traffic, it is detected that cobblestone pavement is used for car way and concrete paving block is used for sidewalks. At transportation fields that are freed from automobile traffic and reserved for pedestrian traffic; it is detected that basalite (Trabzon stone), travertine and concrete paving block are used. It is detected that at health facilities, concrete paving and concrete is preferred for garden pavement. It is detected that at historical fields, ready concrete slab, cobblestone pavement, granite and andesite floor coverings are mostly used historical fields.

At sacred fields, it is detected that mostly marble, concrete paving, concrete and andesite floor coverings are used.

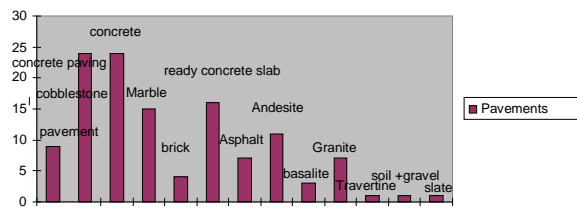


Fig. 10. Physical data regarding field of study flooring variance

Data obtained from photograph analysis, literature review and field work are processed to data table created in computer environment. Graphics are created for each category that is evaluated in accordance with the obtained data.

5. Conclusion

Even though Trabzon, that has historical texture, is a significant transit and trade center of the region, it is detected that reconstruction issues related to flooring are not solved as economic development is under the desired level. In 1927, natural stone flag is applied directly on dirt surface locally and this contributed a natural appearance to take shape. At post-Republic period when automobile driving recently became common, durability and strength in compression also shows as a factor for floor coverings that should not be ignored. Measure, texture, form and color of the used material, are put into shape by being chosen randomly and applying roughing stones, with no aesthetic concern whatsoever.

In 1930's, accelerating of the increase in the number of automobiles and the regulation works in front of the municipal authority, attract attention. With the Trabzon Plan that is carried out in 1930, it is understood that street and road regulation works started. A significant urbanization is seen in city population of Trabzon in Republic and post-Republic periods. Beginning from 1950's rapid urbanization period is started, extrusive stones that are natural stones, road reserved for usage of automobile traffic regulated as boast cut basaltite (cobblestone pavement), that is a combination of andesite and basalt which is called Trabzon stone among the community. It is detected that basaltite (Trabzon stone) which is a domestic material that is quite durable against external factors, abrasion resistant, cheap and long-lasting, is preserved until today.

The coarse-textured and small sized material provides a sense of trust and comfort on human psychology. It is shaped as rectangle and grey colored. It presents a cold appearance as color nevertheless, a natural appearance as well. It resists to acid and stains. Shows an application suits full re-design principle. It is detected that during historical process, Kunduracılar Street, which was home to many stores and shops, used as camel train in 1900's, dirt surface until proclamation of the republic and it was floored with natural stone flags around shops and buildings where two people would pass hardly side by side. 1923 and after boast cut basaltite (Trabzon stone) cobblestone pavement is floored.

Even though Uzun Street is one of the busiest streets of the city in today as in the past dates; it is detected that it has issues dirt surface and rain water left on the surface. It is detected that before the proclamation of the republic, Uzun Street, which was a dirt surface, was a significant passageway with many tradesmen it contains in itself in those years like in today. In 1930's, while Maraş Street was a dirt surface, regulation works to turn it into the major artery in east-west direction are started with 1939 planned period, 1950 and after, boast cut basaltite (Trabzon stone) is floored and preserved until today.

In 1900's, horse cart road around The Square Park is a dirt surface, on the same surface there are natural stone slabs with no ridge that satisfy the use of pedestrians. It is seen that in 1935, the pedestrian road located in the park is floored with quite cheap and easy to floor concrete, the area located in sitting places is floored with pebble stone flooring, in 1950's, the automobile road which surrounds the park is floored with cobblestone pavement and from 1960's pedestrian road is floored with easy to apply and cheap concrete. As for today in the park, cast concrete is applied instead of a uniform flooring.

The automobile road around Fatih Park, which its regulation works started in the end of the 1940's, was floored with cobblestone pavement in 1955, pedestrian road was floored with concrete and in 1960's it attracted attention that there were no changes both in automobile road and pedestrian road. As for today, cobblestone pavement flooring automobile road around the park is preserved since those years, pedestrian road showed a change as concrete interlocking paving stone and concrete.

A dirt surface at Atapark, which its regulation works started in the end of the 1940's, a rectangle pool surrounded with scrub plant groups and sitting elements (benches) that are leaned against green-fields attracted attention in those years. In the park where large concrete slabs are located, with the regulations done during the recent years, flooring stone is changed as floor brick which is terra-cotta based a material, andesite which is a natural stone, is applied in the stairs that lead to the park, the rectangle shaped pool gave its place to the circle shaped pool.

In 1910's, around Gülbahar Hatun Mosque, there were large natural stone slabs, in 1930's natural stone slabs are applied as floor covering. In today, using andesite which is a natural stone as floor covering, a consensus and harmony with Gülbahar Hatun Mosque which is a stone structure is obtained.

According to the present situation; it is observed that while in Administration Fields ready concrete slabs and concrete floor covering is dominant, in Governmental Agencies concrete, in Social Facilities ready concrete slabs, in Transportation Fields such as, in automobile roads cobblestone pavement and in pedestrian roads concrete paving block, in Health Facilities concrete, in Parks cast-in-place concrete, in Educational Fields concrete and ready concrete slabs, in Cultural Places ready concrete slabs, in Sacred Fields concrete paving block and in their courtyards andesite stone is dominant. It is detected that in flooring characteristics concrete floor covering is more dominant. In pedestrian roads concrete paving block, in automobile roads cobblestone pavement and asphalt, in parking lots asphalt floor covering is dominant. Floorings that show aesthetic characteristics as well as functionality can be preferred in the regulation works that will be done in the future. When all the fields are taken into consideration, dominant functional flooring usage is proved to be much cheaper and easier to apply for Trabzon city.

When floor coverings are examined, different kinds of flooring materials applied in fields and places intended for different activities and identities are encountered. While planning floor coverings for open spaces, designers ignore the requirements and preferences of people and evaluate the field, which will be planned, with the surrounding structure characteristics. As a result of this, applications that do not provide consensus and requirements of people occur. However; researches done in the recent years show that aesthetic seeking and visual quality also started to be taken into consideration. For an example; with the floor coverings applied in pedestrian transportation axes, continuity and orientation present an aesthetic appearance as well as they are functional. It is observed that measure, shape, texture and color that are suitable for design principles, stand out.

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