

# The Floor of Tabriz Streets Analysis (Case Study: Emam Avenue, Tabriz, Iran)

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**ABSTRACT:** The city is perfectly a living organism that has been changing. An urban space element of city that will be modified after it changed. The main street of the city is an urban space that in addition provides people's requirement, represents specific culture of city, too. The Imam Khomeini's street as a main street is responsible for this task, but yet it involves in space and physical disturbance. The main purpose of this study is to analyze the Imam Khomeini pavement to identifying problems and providing a solution to solve them. In first leg, we have studied library references to identify the issue and area and utilized field and observation research methods for exact recognize of area. At the end, according to our given information of theoretical foundation, analyze the location and along with recognizing strength and weakness points, present solution to solve an area's problems. We have achieved an important point of this analysis: placement fountain on the center of Saat square is a strength point that due to create more space confinement. One of the weaknesses points problems of pavements, and roadway's floor can haven't been suitable face, and they are unusable by traffic, and the pavements are unsuitable for blind people. None of the pavement's elements are coordinated with an urban space's requirement. The pedestrian line should design for any kind of movement, but it made to only pass an act. Placement BRT station in this area cannot be accountable for passing traffic, although the placement trees' location is suitable, but due to placement of furniture caused disturbance. However, this area hasn't been specific placement for furniture, and ditch cannot be accountable for visual and performance requirements, too. Therefore, the weakness points can be a removable and improvement roadway, and pedestrian floor can improve the performance and beauty of the street, and also ordering floor's elements that can be accountable for visual and performance requirements.

**Keywords:** Street, Physical Elements, Floor, Tabriz, Urban Space

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## INTRODUCTION

Chaos and disorder that emerge by physical transformation of the city, more than anything, due to the negligence of architectures to sphere is in long scale than a design of individual building. The scale that the building joins to its surroundings contains and sees it as part of a whole depends. To studying this issue, is an urban design that is reality specialized in general projects linking urban and architectural designs.

Street of a city as an urban space; whereas today, this concept comes from the street, the street is the only element linking the spaces. The Imam Khomeini's street is a main street of Tabriz city that contains various elements, including historical sites, commercial, cultural, and services. Given that, the street as Imam street where daily for pedestrians and provides both of citizens and passenger's requirements, could be able to presents the culture and originality of a city except provides citizen's requirements or despite the problems such as bad image of the city and traffic has deprived people to understanding of the places' value, like the Kebud mosque and Ark Alishah, etc.? In this study, we will be identifying various factors on the floors which causing our expectation of a major an urban space like Imam street is not being done, and try to search solution to compensate for this shortcoming. Failure to identify and evaluate these principals makes to remain unknown and inattention of an

urban space and this will be increasing weakness on this street.

**The Purpose of Research:** Identifying and evaluating effective principals to improving the pavement's elements.

**The Research Hypothesis:** Pavement's constituent elements of the physical element's positioning executable to have an ability to solve traffics problems.

## MATERIAL AND METHODS

The methodology includes resource and instrument ways that confronting of proportionality of issues. At different stages of this paper, methods and instrument have been applied. Firstly, used science resources and official and unofficial documents, in this regard using as library or study methods.

At continuing to reorganization, the observation and field studying are used that applied various instruments, including a camera, asks and taking note in this section. In the analysis section, we have used comparable methods to comparison between the physical features, and analysis method to explain between past and present. So in this part, computer programs are used to design map and provide information.

### The Area of Research

Due to The Imam street is large and impossibility to examining the whole locals of this street was chosen as

a case for study. After generally considering, due to various users, historical sites such as Kebud mosque, Ark Alishah, and placement Saat square is one of the main squares of city, neighboring buildings from different periods of time at the local and placement register historic building, and Shariati square until Beheshti intersections were diagnosed suitable issue for this study.

### Urban Space

**Definition of Urban Space:** According to architecture and urbanization scholars' theory, an urban space is beyond the physical and geometric parameters. An urban space in a broadly defined to include citizens living space that is consciously or unconsciously, to achieve different purpose (Pakzad, 1996)

According to Moughtin theory: streets, boulevards, squares, city's parks and along with including construction faces have defined as part of urban space. An urban space which is a combination of functions, various cultural, social, official, and commercial buildings and like that and urban elements and parts are polished, coordinated and then organized by visual values (Golkar, 1999). Urban space is public open spaces where social interaction between citizens and the environment occurs (Tavassoli, 2000). Urban space authorizes to access to pre-developed encounter and collaborate with other citizens (Pakzad 2009).

The urban space can be defined as where public place between buildings that urban elements and parts are polished, coordinated and organized by visual values and therein social interaction between citizens, and the environment occurred.

### The main features of urban spaces

The Urban spaces could have three features that described below:

**The urban space confinement:** The first principle for urban spaces designing is enclosing. As if the space is not optimal confining, it could not be achieved in an attractive urban space. The most fundamental act on design of urban space, square and street, is confining building bulk composition of square and street's confine so it means that, the structures and functions are on the square and street's space.

Flooring as an agent is effective in increasing or decreasing mental confinement can less imagine or lack of focus in a dynamic urban space. In any case, when the single buildings are enforceable and effective and linking together to have a better design, just a flat plain floor that causes the least attention is desirable, but if the buildings are not coordinated with each other or on the plaza frames there is a big gap, it would be used to careful design of the plaza floor to compensate for deficiencies.

Iranian architectural traditions based on the look of the sky is due to will be low design in urban face, floor and mostly floors are simple and unified set of stone or brick. Hence, it creates a simple and uniform continuity. The indicator architectural element that has been used on the sum of static urban place's floor in Iran so the pool which is symbolically sky that reflection on the Earth.

However, most of this indicator element causes to mental centralization and social decentralization. In other words, the central place is devoid of human, this absence

due to understanding centralization of space symbolic. The continuity creates confinement of space which designed on the floor by flat integration or repeating.

### Composition and coordinating of urban space

**aesthetic:** Every space in the city cannot be considered urban space, unless it is formed according to rules of aesthetics. The public places surface and their coating are factors that has considerable effect on the pedestrian's movement. The pedestrian's traffic determines by floor cover's materials, hardness and weakness and roughness or flatness principles. The thoroughfare's cover should be hardness, non-slippery, and non-removable, despite they can easy to fix (Ghanbari, 2010). The street and square flooring significant contribution to urban spaces shaping and makes more attractive for pedestrians movement flooring in urban spaces have as a unifying element in combination with buildings, signs and parts of act. The pavements flooring should be suitable for disabled and blind people.

### Performance and collective action in urban

**place:** Activity: vitality and dynamism of urban space and in contrast, dismal of reflective and the types of functions and events that takes in urban place. Therefore, firstly we should going to examination functions to identifying vitality (Pakzad, 2007). In addition to the physical body cannot be rises this images singleness. Nevertheless, just the physical principles can make optimal place for people's presence. For example, due to valuable work can be attractive a large number of tourists that creates a various functions in a place. Thus, in addition to the aesthetic of the body, there are functions that cause vitality and people's presence in urban spaces and public areas are also important.

Influence of some functions within stores into urban space in an effective factor for urban vitality. For instance, we can point the restaurant which their customers' seating locations are in outside, thus its inner live flows out of it, too. The functional role of urban spaces as places of public functions and urban interactions periods has long existed so that the people's functions of every age can be recognized by their urban spaces or on the contrary, an urban space introduced by citizens' functions and interests. Therefore there is a close relationship between the cultural, social and political developments of a city and its urban spaces.

According to many scholars believes: the highest stage of cultural and social puberty of a city's citizens occurred within urban spaces where in addition a form and body has long sense as content.

### Constitutive physical principles of urban space:

The space can be identified by its confinement and inner elements and its feature is dependent of condition and order among these elements. The elements and constitutive components of urban space including: floor, body, and putting elements on space (Pakzad, 2009). Now that the paper is about floor, this issue is explaining in the following.

The floor is used as on the ground. The floor surface of restriction under elements of space is usually horizontal and can be uniform or step by step, however changing possibilities are relatively limited. The

connection that is between different spaces' floor has considerable effect on the total features of spaces complex. Usually, the floor built by levelling.

This common element in different spaces is connections any principle between spaces. At the urban spaces, the floor's high level's differences causing inability and non-strong functioning on the urban spaces, because the citizens during mobilization prefer the path urban spaces and convenience grounds.

One of the floor usages can presents ownership of spaces, warning principle or in some case represents a special change or event (Pakzad, 2009)

A different level of flooring suggests variety movement messages to pedestrian. Placement different surfaces on different altitude can be defined the urban different functions such as horse and foot, separation of showing and sitting places. These places with visual frontage preservation retain their distinctiveness by embedded spaces and providing the floor surfaces changes on the urban spaces' level. These verbal frontages that are represent visually permeability by preservation of frontages on the urban spaces' surface that is the most suitable elements for separation of functions. Also, these spaces have suitable flexible working in contrast of functions and in certain cases they can turn to their other functions. Increasing physically and rest security and easy using of space are the feature of these spaces for users. The interaction of floor pattern are in the throes between motion and floor as a factor give rhythms, scales and coordination to urban space and can be designed (Karami, 2007).

Concluded that floor is the best tool for designing to urban space (Pakzad, 2009). The public places' surface and their coating are principles that have considerable effect on the pedestrian movement. The floor cover's materials, hardness and weakness, roughness or flatness determines how pedestrian are going to be traffic. For example, the floor of lane or pavement that is coated by removable and non-stationary materials due to increasing of safe pedestrians' movement speeds.

The disability pedestrians who are use wheelchair due to dense material around the wheel of wheelchair unable to move. The thoroughfare cover should be hardness, non-slippery and non-removable, despite they can to fix easy. As cost of production also should not be using at scare materials or the materials that are used on other more important parts (Ghanbari, 2010).

### Forming elements of floor

The horizontal floor can occurs on one a level or different levels. Otherwise, the floor is ramp or broken (stairs, etc.)

Type and color of materials: the floor has been made by material which these have special features in terms of materials and colors. Also, how to use these materials, how they are organized, and how connection between the different materials has effective on the flooring. Furthermore the mobile space for pedestrians, an urban space's floor includes other elements:

The location for placement trees (single tree or row), gardens and etc. (vegetation) (vegetation on urban space).

The location for placement furniture such as benches, light base, vases, urban installation (electricity, water, etc.), and etc. (=urban furniture).

The way in which water flows such as ditches, canals, streams and etc. (= the water way).

Finally, it should be notification that the physical components must be have the main features of un urban space it means that having the confinement, combining aesthetic and functional and community functions and closing to this purpose, we are going to coordinate the floor element with optimal urban space features.

### Identification and analysis of study's area

**The study area's location within historical-cultural zone:** The area of the study is Imam Khomeini's street that is located between Beheshti's intersection and Shariati's square. This are is located on the southern zone of Historical-Cultural of Tabriz.

**Identification and analysis the main features of urban spaces at study's area:** At continues, we would be identifying and analysis the floor element to create the urban space with mentioned features.

**Space confinement:** At this area, flooring is plain stone paving on the pavement and asphalt on the roadway. We should orientation that flooring is sub factors to increased or decreased of mental confinement and so that the individual building themselves are predominant and effective and have a good designing communication, just there's simple flooring is suitable for this space, and we can say that, the flooring is suitable for the space. In square, there is a fountain on the center of square due to increased focus and sense of confinement at this space. Due to placement fountain on the center of square, the confinement increased overall, totally the floor element creates suitable confinement at this space.



Figure 1. Fountain of Clock square

### Mix and aesthetic harmony in urban spaces

Every space in city cannot be considered as an urban area unless it is formed according to the rules of aesthetics. To review the pavement in terms of aesthetic and harmonious composition the two parts are needed. One part is floor element that includes walking paths, roadway paths placement of trees, urban furniture placement and direction of water, and the other are included flooring passages.

**Table 1.** Examination space confinement on the area [Source: written based on derived of theoretical]

Influence on Confinement	Elements within Area	Confinement Increases	Confinement Decreases
If there are coordinated buildings, the plain flooring would causes enrichment of collection.	Cement plain flooring on pavement and asphalt on the roadway.		
Placement indicator element on the floor due to Confinement Increases	Placement fountain on the center as indicator element		

**Floor elements**

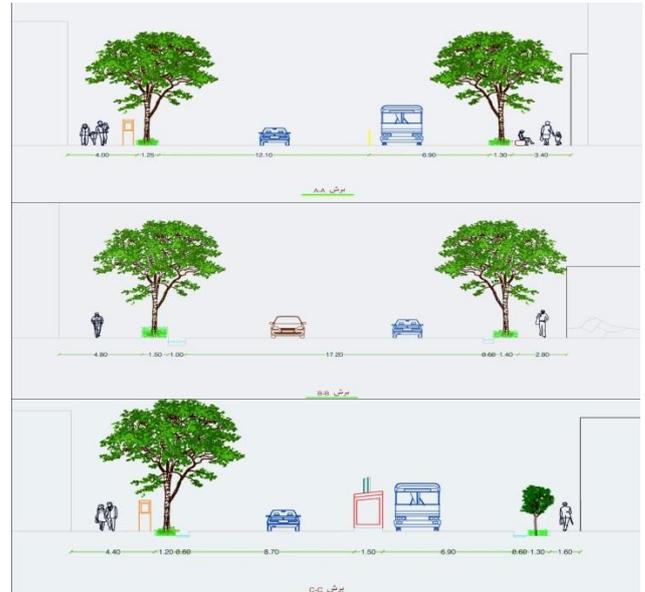
**Walking route:** In the case of implementation the type of movement is important. Pavement is beautiful when adds to aesthetics. Functions required solving. In the studied area walking path is just a space to move without considering the moving. In this space it is only one species. A move to cross the space is the only thing that has been given to this type of movement. Another type of movement is movement in urban space to use it which is sometimes associated with watching shops. On the other hand sidewalk needs space to stop people that they can stand in in the space and satisfy their needs. This requirement maybe is seeing a familiar friend. In case study walking route is the only way to cross, so if they want to reduce their speed and use space it is a barrier to cross.

**Roadway rout:** Nowadays paying attention to the street without paying attention to roadway is useless. The roadway is done in different ways. The main purpose of the roadway is to be crossed which this street with its less width is not responsive to passing traffic, especially at certain hours of the day. It should be noted this space has BRT band in addition to ride. This band is designed in such a way that there is space for the passage of two BRT buses and no space remains on the side of band that has caused problems for people.

**Location of trees:** street trees are causing visual aesthetics of space and with stylized the space making it suitable for use by individuals. In case study the trees are located in the space between the sidewalk and roadway that this space is suitable for enhancing the security and safety of individuals. What should be noted here is using the location of trees expected to create new spaces that in this area for creating bus-stop this space used easily which has led to destroy the beauty of this space.

**The location of urban furniture:** In an urban environment urban furniture is an integral element of urban space. In this area furniture added to space without needful design. Some are based on the location of trees that eliminate the beauty of this space and some are located in the pedestrian path in such a way that the floor doesn't contain any domain neither visually nor the functional.

**Water flow:** water flow should pursue two goals, one beauty of space and the other function. In this area some parts of the roadway is under the direction of water flow that in this part there is no problem in terms of function and beauty but in some areas water path is barefaced and don't have accumulation of waste in the atmosphere is not only beautiful but also the function of this pathway is also affected.



**Figure 2.** Street transverse profiles (Reference: field studies)

**Table 2.** Problems of flooring in the case study



**Figure 3.** Pavement wear in BRT lines reduce the efficiency in street and make irregular view on it



**Figure 4.** Requires repairs haven't done after drilling.



**Figure 5.** Improper repairs after drilling has cause the sidewalk unorganized view



**Figure 6.** Lack of paying attention to sidewalk flooring in whole case study

**Flooring**

Public streets and its coverage are the factors that influence the movement of pedestrian. Flooring material, stiffness and laxity, roughness and flatness will determines how pedestrian traffic will be.

Covered passages must hard, none-slip and none removable and can also be easily repaired. Flooring streets and squares has a significant contribution in shaping urban spaces.

Flooring in urban areas should serve as a unifying element in combination with buildings, signs and components. Flooring sidewalk should be appropriate to pass the disabled and the blind (Ghanbari, 2001).

According to surveys conducted in this area decking is not appropriate.

In street the BRT line asphalt due to high traffic has suffered wear and roughness that this factor cause street irregular face and reduce its efficiency (Figure 3). Flooring sidewalks don't have necessary beauty and has been eroded due to high traffic. Also after the excavations

take place in those parts necessary repairs haven't performed and one left to its own device. In this area there is not any care about pedestrians flooring design and the only criterion is function and makes more attraction for implementation. Paying attention to the disabled and blind people is the most criteria in the street design which is ignored in this area (Figures 4, 5 and 6).

**Table 3.** Evaluation of composition and aesthetic harmony in case study  
(Reference: Author, based on principles derived from theoretical principles)

Components of urban spaces	Impact on the beauty of space	Elements in case study	Enhance the beauty	Beauty loss
Walking path:	Pavement designed for different purposes and different types of movement	Pavement intended only for people's movement that sometimes is not amenable to this type of movement.		
A route rides	Proportional to the passing traffic	Inappropriate for passing traffic		
Placement of trees	Space allocated for the establishment of trees in the right place	Placement of trees in the right place Eliminate this space to use it for new requirements		
Location of urban furniture	A space dedicated to creating furniture with the right visual field	No specific location for furniture, and placing them on sidewalks and green spaces in the absence of functional and visual field		
Water flow	Commensurate with performance and aesthetics	Inelegance water flow paths in some areas, and litter in some areas		
Flooring	Covered passages must hard, none-slip and none removable and can also be easily repaired. Flooring streets and squares has a significant contribution in shaping urban spaces. Flooring in urban areas should serve as a unifying element in combination with buildings, signs and components. Flooring sidewalk should be appropriate to pass the disabled and the blind	In street the BRT line asphalt due to high traffic has suffered wear and roughness. Flooring sidewalks don't have necessary beauty and has been eroded due to high traffic. after the excavations take place in those parts necessary repairs haven't performed Paying attention to the disabled and blind is ignored in this area		

### Function and activity

Function and collective action are obvious characteristic in an urban area. To review the function and activities of case study the surrounding land uses and historical sites in the areas of space has been investigated.

### Land use

According to the studies done in case study cultural use has maximum area with 23.94% and utilities and municipal facilities have minimal area with 0.1%. The dominate land uses as table 3 shows respectively are cultural uses, commercial, religious and administration. Dominate use proximity does not cause a major problem. The main problem is the widespread lack of public parking, poor access and public spaces. And another major problem is the lack of green space which generally is the main problem of center of Tabriz city.

This area has a large diversity reflects the dynamics in this space. Urban space should be dynamic and alive that this case study despite the variety of uses has necessary dynamics.

### Historic places of case study:

Historic sites in case study include: 1-Blue mosque 2-Ark Ali Shah 3-Hall 4- Karim khan mosque

This area has a variety of historic sites that these places enrich area and attract crowd. One of the features

in urban space is attracting people, which there is good potential in this area. In this section these can be stated that case study has a very good land use verity that indicates its high potential. The main problem in this area as in other parts of the city is the lack of parking and green space.

**Table 4.** Case study land use (2013)  
(Reference: Case study land use, field study)

Land use	Area (m <sup>2</sup> )	Percent
Residential	1175	1.1
Commercial	26564	23.9
Service	3040.3	2.7
Business - Services	7909	7.1
Cultural	29406	26.5
Religious	26862	24.2
Sportive	477	0.4
Therapeutic	329	0.3
Administrative	1474.8	1.3
Green Space	3833.8	3.5
Installation	129	0.1
Catering Tourism	491	0.4
In the destruction	954	0.9
Under Construction	8433	7.6

**Table 5.** Review the function and activities in case study (Reference: Author, based on principles derived from theoretical principles)

Function and activity ingredients	Expected function and activities	Elements in case study	Positive impact	Negative impact
Historic Places	Historic Places, Strong potential for creating a dynamic urban space	Many historical sites existence	●	
Land use	Urban space should be dynamic and alive.	Case study has great land use diversity.	●	

With studies took place in case study and conducted analysis it is concluded that this case study with numerous historical sites and variant suitable land use can be considered as a main urban space. In this part with reviewing inbound elements in case study each of these elements has helped to create an enclosed space in this area. According to space aesthetic combination in case study about floor elements such as sidewalk, roadway, trees placement, urban furniture placement and movement of water, it can be said that none are completely fulfil the visual and functional requirements. About flooring it should be said that only in limited part of case study paying attention to it. In function study the main problem in this area as in other parts of the city is the lack of parking and green space.

### Hypothesis testing

To create a desirable urban space paying attention to the constituent elements in space is important. An ideal urban space is a space that its elements especially body is accountable about space enclosed, aesthetic combination, function and optimal activity. To meet these needs for body some principles are introduced that we can prove or disprove the hypothesis with comparing these principles with an existing situation. Hypothesis: Implementation of structural element forming the roadbed has the ability to re-organize to solve the traffic problems of street.

In case study we can mention fountain in the center of Sa'at square as an strength that cause more enclosed in space. According to field studies sidewalk and roadway problems can be noted as weaknesses that do not have the necessary beauty and have been eroded because of high traffic. Sidewalks are not suitable for blind people. As the case study profiles and photos show it must be said that none of the floor elements is coordinated with needs of a good urban space. Pedestrian path should be designed according to the motion while in case study it is considered only to cross paths. About roadway path should be said that this area cannot be held accountable for passing traffic also with placement of BRT line. In this case study the placement of some furniture on it had been disturbed. However it should be said that this area don't have a special place for furniture and also ditch doesn't fulfil the visual and functional requirements in some parts. On the other hand weakness can be solved and improved

function and beauty of street with improving roadway and pavement flooring and floor elements can also be arranged in such a way they become responsive to visually and functionally needs.

The result: Implementation of structural elements forming the pavement has the potential for re-organize the streets traffic problems.

### CONCLUSIONS

In forming elements of floor do not have the required order in most parts and don't respond to the function of this street that it can be enriched this street with arranging it.

At the end it can be concluded that this paper's hypothesis is proven and can be achieved to the aim of this paper with providing solutions to answer the paper existence hypothesis. Then in order to improve the quality of urban space in case study the following suggestions are offered:

- Increase the width of BRT line with covering ditches.
- Specialized some rehabilitated buildings to parking and avoid cars from parking along the street in order to increase the width of the roadway.
- Increase width of sidewalk with removing furniture from sidewalks
- Improving sidewalks and roadways flooring and use resistant flooring against traffic and erosion.
- Use suitable flooring for blind people on sidewalks.

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