

## Recycling an Urban Space: Hasan Abad Square in Tehran

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### 1 ABSTRACT

Historical texture is the cultural heritage of every nation and restoring and rehabilitation of it is a national and public commitment.

Unfortunately there aren't many activities about preservation and restoration of historical texture in Iran.

Squares are one of the most important urban spaces but mostly in Iran squares were considered only as traffic nodes, and there is less attention to other function for squares.

Rebuilding of Hasan Abad square is one of the limited numbers of restoration of an urban space in Iran.

In restoration of this square authorities tried to pay attention to the presence of pedestrianization in this space as well as traffic function.

This article is about the history of this square and its restoration and the present situation of Hasan Abad square in Tehran as well as some explanation about the aesthetic criteria of an urban space.

As a conclusion I will try to prove that with regarding both aesthetic criteria and fractal geometry can create an exciting and gorgeuse urban space.

#### 1.1 What is an urban space

Urban space is one of the components of city that forms and transfers during the history of a nation in several periods.

Urban space is a place to flow civic and social habitat. Zoker identify urban space as: "an organized, ornamented and ordering structure like a body for human activities which is based on clear and identified rules such as: relation between form and surrounding facade and being similarity or variety of them, proportion of façade to wideness and length of space, the angle of passage or routes that reach to squares and finally the situation and place of historical buildings, waterfronts and fountains or other 3D elements that we can emphasis on them.

Cullen notifies "the art of proportion" in his book and calls it the base of "Art of architecture" because of the wise ordering which there is between elements of a built environment.

He says that we should connect buildings, trees, water, traffic, advertisement signs and so on with each other in a manner that create a "demonstration of art of city " because city is an exciting happening.

Then Cullen says that if finally the city looks spiritless and gloomy so this city hasn't answered the requests of people and is a failed experience.

So Cullen knows the solution of this problem in enriching the visual sense of people, because according him people percept their environment by visual ability or visual sense.

According to Lynch if a city have a legibility, Imageability or complete clearance looks noticeable, good manner and honorable. This city invites ears and eyes to itself much more.

The ideal is that the image of city causes visual utilization of people and people share and participate themselves in that visual perception.

Here we face with education, which means enrichment of visual sense and grow up the taste of beauty of people to create the participation between people and city. Maybe the designer has responsibility to educate the people.

#### 1.2 Evaluation of beauty in urban space

At a glance to the history of architecture and urbanism in the world we notice that in modern movement in 19th century function is overcome on buildings and urban spaces. In this period volumes of buildings were became more and more pure and simple by "form follows function" motto.

To solve this problem the first step is putting some criteria and measures to evaluating beauty (visual effects) and aesthetic factors in urban space.

Now urban spaces often are places that only belong to vehicles and give a few attentions to pedestrian and their attendance in these spaces.

Contemporary urban spaces are messy, terrible, and ugly and without identity in spite the fact that historical urban spaces had and have characters that still are attractive for many people to see and enjoy.

Here we should ask, why? Isn't the importance of beauty equal with the important of function?

How should create beauty and how should evaluate it in the urban space?

We need to consider beauty in urban space and also need to have some criteria to evaluate beauty and good visual effects in urban space. We also know beauty is not a quantity it is a quality.

In fact nowadays in designing the urban spaces designers always think about traffic function and neglected from some measures such as surrounding, harmony, equivalence, proportion and clearance and so on , so we have spaces which are ugly, empty & without identity.

In this article we tried to choose some criteria to evaluate beauty and visual effect in an urban space. We will identify these criteria and at the end we will evaluate some samples of urban spaces with those measures and give the final result about them.

There are several specialists that have issued some criteria to evaluate design in urban space such as: Lynch, Cullen , Alexander , urban systems researching Eng. SNG and so on. Totally these criteria of designing can be divided to three categories: measurable, nonmeasurable and generic. Of course describing about these categories couldn't be in the limited capacity of this paper.

I myself prefer some visual criteria to evaluate urban spaces that are nonmeasurable and includes:

Ordering, unity & composition, scale and correct proportion and harmony.

## 2 WHAT IS FRACTAL

Fractal is a structure that each element of it is similar with its whole.

It means that it has complexity in its structure in every degree of its zoom and its edges and their interior aspects are not even and flat but they are penetrable or writhen. A fractal includes of some connected structures that have different scales.

Rich structure of cities has complexity in every degree of zooming in but in contemporary cities this matter has been neglected and be omitted.

In fractal geometry there is no straight line. An even and plain surface has no infrastructure so it isn't fractal.

Modern urban spaces try to use straight lines and even surfaces and it won't give any fractal information to visitors.

In versus in historical cities such as London , Venezia , Yazd , Kashan , Isfahan (historical cities of Iran) colonnades , surfaces and lanes all have permeable surfaces that because of that exchanging could be possible.

This is the character of a space with information context that is created by fractal design.

Here we should point to an important thing , it is a scale that the fractal dimension measured by it.

Important and traditional urban spaces use fractal in human scale. For example a colonnade will be useful when the space between columns is from 1 to 3 meters because this space is in human scale.

In versus, existing a huge space more than 5 meters between columns divert the users from its structure. So being fractal in human scale is important to be understood by people.

### 2.1 How Survey the ways of increasing the content of urban space by fractal information.

In every urban space increasing its information field in legible and clear way will make urban space seems attractive and more exciting. But in contrast modernist architects try to abstract and to empty these spaces.

Salingaros names three principles to create a successful space:

- Urban space is bounded by surfaces that present unambiguous information.



- The spatial information field determines the connective web of paths and nodes.
- The core of urban space is a pedestrian space protected from non-pedestrian traffic.

As was pointed, using urban spaces related to the information field that is produced by surrounding surfaces and how to realize this information easily by pedestrians. So we need to identify two common information criteria:

- Content
- Accessibility

Increasing information in an urban space can be implemented by plan (x-y axis) or by see sight (a – z axis) in these ways:

### 2.1.1 By plan (x-y axis):

Vertical facets and flutes close to the ground:

To obtain visual and acoustic information looking horizontally, a surface must reflect in a variety of horizontal angles. A structure is subdivided into vertical facets –thin vertical strips, or flutes– that offer many different angles of reflection.

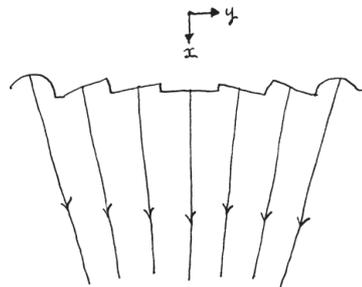


Fig. 1

Courtyards:

Vernacular domestic architecture throughout the Mediterranean employs the open courtyard as the largest living space. Its boundaries carefully direct information inwards. The same pattern applies to Medieval Islamic Madrassas, Caravanserais, Christian Cloisters, and provides the prototype for the university building surrounding a green or paved yard.

Colonnades:

Colonnades gave definition to urban space in the ancient world, and continue to do so today in the few remaining street arcades. Regularly spaced columns create a partial enclosure.

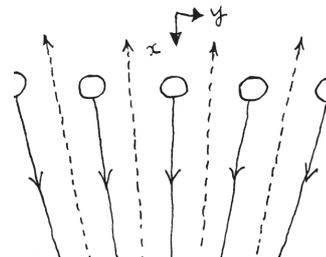


Fig. 2

Columns and pilasters:

The reflectivity of a plane or convex exterior wall is increased by a line of columns in front of it. These could be either whole columns in front, or half columns in relief on the wall.

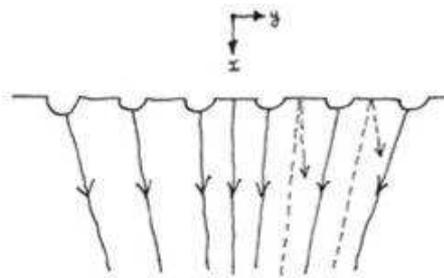


Fig. 3

**Fluting on columns:**

An isolated unfluted column presents a convex surface having a single normal line of reflection.

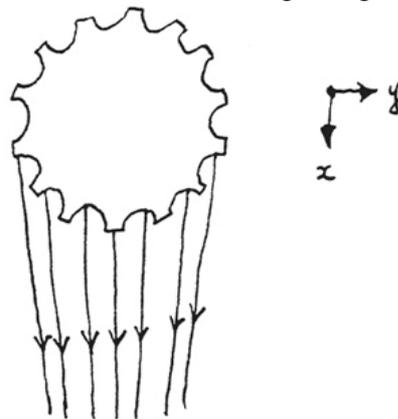


Fig. 4

**Column cluster:**

In the engaged pillars of Medieval European cathedrals, a principal column is surrounded with four smaller half-columns.

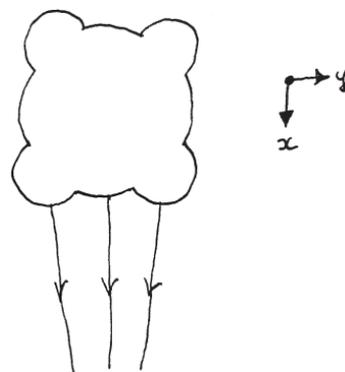


Fig. 5

**2.1.2 By looking up from the horizontal (x-z axis):**

**Horizontal facets and flutes above eye level:**

In order to scatter light and sound downwards towards an observer, a surface has to reflect in a narrow range of angles in the vertical plane. Horizontal strips or flutes should be defined, oriented at a variety of downward angles.



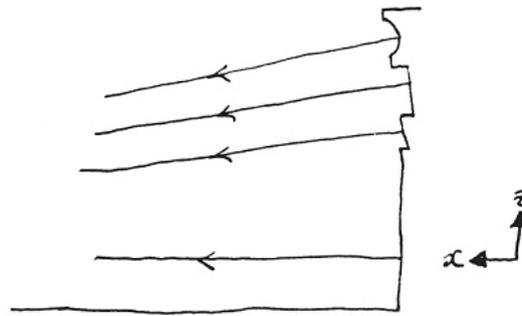


Fig. 6

#### Roof edges:

With the exception of those in desert climates, buildings historically had protruding roof edges or cornices. Without this edge, the connection of a pedestrian to the building's height is lost.

#### Roof corners:

The roofs on Chinese, Japanese, and Korean temples all curl up at the corners. Overhanging eaves protruding towards the viewer are visually ambiguous, and possibly threatening, whereas corners that point up present surface information from the underside to an approaching pedestrian. This extends the effective signal to a region outside the building.

#### Window intels:

Throughout history, windows used to have a lintel or deep exterior frame that connected visually and acoustically to a viewer outside. Making the windows flush with the exterior wall – as if they were from a “single skin” – removes this essential information, leaving no other point of contact

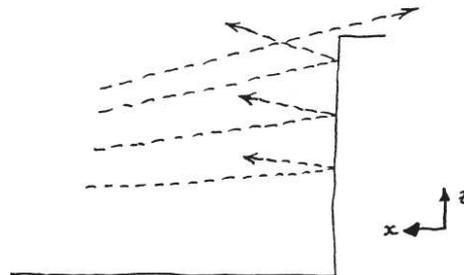


Fig. 7

#### Arches:

The magnificent stone carved Romanesque doorways and Seljuk entrances to mosques and caravanserais, and Timurid tiled iwans, are concave elements based on the arch. All of them focus surface information. In our times, the Sydney opera house is an example of an open arched entrance. Arcades on the street level serve the same purpose for an approaching pedestrian.

#### Domes:

From the Pantheon, to the Hagia Sophia, to the tomb of Soltaniyeh, to Sinan's numerous mosques, great buildings have recreated indoors the amplitude of enclosed outdoor space. Those interior spaces offer us lessons for generating urban space. On a much smaller scale, covered structures offering protection from the weather- either attached, or free-standing- generate a vertical information canopy.

#### Pediments and friezes:

Sculptural friezes in Classical Greek and Hindu architectures, and calligraphic relief friezes in Islamic architecture, represent a diffractive area that scatters light in all directions; principally downwards. Quite separate from their artistic and religious value, therefore, they function as visual and acoustical information sources.

### 3 RECYCLING OF HASAN ABAD SQUARE IN TEHRAN

#### 3.1 The history of square

This square is one of the designed urban spaces in old Tehran. Hasan Abad square is located in the intersection of two main streets Hafez and Sepah and erected in the first Pahlavi reign (1930-1940).

Maybe one of the most important features of this square is its symmetry. Today most of the functions of this square are commercial.

The other feature of the square is its classic ordering in architecture of this square. That was an imitation from Palladio's style. Respecting environmental values and climatic criteria are other positive features of this square, so that earning sun shine is respected according to the height of building.

The other feature of this square is the feel of enclosing. 15 years ago the building of the bank (that was erected in Pahlavi II reign) in east southern of square caused disordering in the body of square. Now this building has been improved by imposing a continuous elevation in front of the bank and the unity of this square has been revived.



Fig. 8: Hasan abad square in Pahlavi I



Fig. 9: Hasan abad square in Palavi II



Fig. 10: Hasan abad square today

#### 3.2 Restoration activities

Returning to the identity of a society is one of the factors that unify a nation and integrate the scattered elements in a society. Actually the identity should be revived mostly in cultural and urban environments.

Tehran has a long history but lack of attention to identity and preserving its cultural and physical heritage caused that the most of the valuable buildings and urban spaces were ruined and turned into an ugly and unpleasant city.

The population of Tehran in recent century have been increased very much but its citizens couldn't have any emotional relation with it and they aren't honoured by living in this city.

Hasan abad square is one of the limited places in Tehran that have a historical and valuable architecture. The municipality of Tehran decided to turn the square to a cultural and historical center and this place is supposed to be a historical center of city.

The program for restoration includes making suitable place for the station of underground train, underground way for vehicles, enhancing lighting, rehabilitation of ornaments and different parts of square, improving the façade of "Melli Bank" and improving the pavement of square.

It should be said that many cases of this program have been implemented and only few cases of it has been remained.

### 4 EVALUATING OF RECENT SITUATION OF SQUARE AS AN URBAN SPACE

Today Hasan Abad square has a good quality as an urban space according to aesthetic criteria we can say that this square has all of these criteria because it contains ordering in its circular form and has unity in its body. In addition the facades and paving of this square are fractal and analyzable.



This square has a rich information field and its content isn't empty because of the domes, column capitals, brick ornaments and so on.

These information are clear and they are in human scale and pedestrian can attend in this square easily as well. Finally we can say that there is civic vitality in this square



Fig. 11: The north –east façade of Hasan Abad square

## 5 CONCLUSION

Tehran has a historical district in its center and unfortunately this area has been forgotten because of many reasons.

In the central district of Tehran most of buildings haven't essential standards for living so residences leave this district and immigrants or low-income people replace with old residences.

This causes to decline the situation of this area. Because of leaving the houses and change them to warehouses or workshops, the possibility of getting fire will be increased. Fire occasionally hurt the properties and buildings in this district.

Restoring and reviving the physical body of this area is the main solution of this problem and restoring of Hasan abad square and change it to a cultural –historical center is only a little part of this attempt.

As a citizen of Tehran, I hope that someday we can notice the changing of this worn-out district to a valuable area which is visitable for all over the world.



Fig. 12

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