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Analyzing and Evaluating Facades with a Special Approach to Visual Aesthetics Using the Grid Method (Case Study: Enqelab Street in Sanandaj)

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Abstract

Problem statement: Squares and streets of a city are the main parts of the public spaces that are considered the showroom of the visual environment of a city. In the past, buildings in addition to being beautiful, they had been accommodated with their background, and with respect to the surrounding environment. Today, the view of many Iranian cities is chaotic and disturbed and this is a result of the heterogeneous and disoriented association of form, activity and space on a large scale, and on small scale, it is due to the lack of harmony and proportionality in the composition of elements of the buildings that are formed together.

Research objectives: The purpose of this study was to extract the effective factors on the promotion of formal aesthetics of urban facades and their application in redesigning of Enqelab street facade in Sanandaj- between Namaki junction and Enqelab square- that is located in the historical context and the Primary core of Sanandaj. Since this research seeks to apply the available basic knowledge, belongs to the field of applied research, and as this research attempts to apply some criteria for the measurement and analysis of the environmental quality, it is considered as descriptive-analytic research.

Research method: This research tries to acquire a deep understanding of the current state of the area in order to redesign and reinforce the form of urban facades. To achieve this goal, the research process has been carried out in 3 stages: First, we examine theories related to urban aesthetics, then identify the components of the urban landscape and explain the physical goal, and in the 3rd stage a parametric model for the measurement and analysis of visual quality in the urban landscape is presented.

Conclusion: The results of this research will be presented as a guideline for enhancing visual aesthetics of urban landscape design.

Keywords: *Urban Landscape, Urban Facade, Aesthetics, Visual Aesthetics.*

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Problem statement

As the most complete and complex forms of human settlement, cities are the most prominent manifestation of the social, economic, and historical values and conditions of their inhabitants. Cities always are influenced by various physical, economic, social and cultural factors, and over time they have formed their totality in relation to these factors and have become a unified whole (Alishah, Ebrahimi & Ghaffari, 2016). Cities with their perspective, subject themselves to the judgment and observation of observers, in other words, the landscape of cities such as the outer shell of each habitat, attract the attention of passengers and they are the first thing citizens within the city space communicate with (Alishah et al., 2016; Stiles et al., 2014; Vahdat, Karimi Moshaver & Sajjadzadeh, 2015).

Urban spaces are seen as an environment that is always in a bilateral interact with humans and their behaviors (Woolliscroft & Polovina, 2017) and the urban landscape is what has caused this interaction, which forms a big portion of citizens' environmental emotions toward the city (Amiri Rigi, 2015). In this regard, human beings not only influence the urban landscape through their activities, but also their behavior and mental perception are influenced by the urban landscape (Mahmoud, 2018; Gharehbaglou, Nezhad Ebrahimi & Javidmehr, 2016). However, with the growing trend of urbanization and the speed of changes, what is most threatened in the structure of cities, is urban landscape (Zhang, Zhang & Sun, 2018; Bundervoet, Jonas, Narae & Shohei, 2017) which is being considered as the crisis manifestation in urban design, urban management and visual planning of public spaces of the city and has caused citizens to distance themselves from urban spaces and not to having sense of belonging to space (Ahmadi & Khajeh, 2015; Kaymaz, 2013; Beske, 2007).

Taking a glance at urban facades and landscapes through most of the cities in the country, it is

evident that the common alliance between facades has been evaporated and each building is emerging with its own shape and style -in terms of color, and materials- without considering the surrounding context and other buildings. Therefore, to prevent the ever-expanding of those constructions and façade design patterns that are formed without any semantic, formal and ecological background, and are increasingly creating a heterogeneous composition of street facades, it is necessary to pay more attention to the views and urban facades of the city as indicators of urban landscape. Therefore, the present study first defines the concept of urban landscape aesthetics, and urban facades and their role in the aesthetics of urban landscape, then, by extracting the main aesthetic criteria of influential aesthetics and formulating an optimal analysis method tries to reach a rational answer to the research questions and attempts to redesign the selected research site.

Research questions

In general, the present study attempts to answer the following questions by examining and analyzing the aesthetic qualities of urban facades:

- 1- What are the components and criteria of urban landscape assessment?
- 2- What are the solutions to improve the quality of the facades in the study area with an emphasis on the aesthetic discussion of the urban landscape?

Research Background

Various studies have used different methods to evaluate and analyze urban facades. Each one, according to their study area, has considered the aesthetic criteria of urban facades and their impacts on the vitality and dynamics of the city. Here are some of the most important ones:

Jennath and Nidhish (2016) aimed at Identification of the influential parameters of building facades on visual-aesthetic qualities. This research shows that people consider some types of building forms and their features as beautiful qualities.

These researchers showed that there is a positive correlation between aesthetic visual quality and people's preferences with expected performance.

Utberta et al. examined environmental qualities by using anatomical analysis of urban facades. This research demonstrated what could affect the mentality of citizens in the built environment and the facade of the buildings. In other words, the structure of buildings determines the quality of the environment. These researchers also showed that the architectural style, color of materials, form, and design of the building have an influential role in overall quality of the environment (Utberta, Jalali, Johar, Surat & Che-Ani, 2012).

Tadayon et al. discovered an optimal method to measure the impact of colors of the urban facade on landscapes of historical cities. They showed that color, as a part of urban landscape, has a profound effect on how urban landscape looks, and as a natural stimulus, it can be an effective tool for expressing human emotions and reflecting the culture of the city (Tadayon, Ghalenoee & Aboee, 2018).

Mousavi Sarvineh Baghi and Sadeghi (2016) also attempted to find an answer to the issue of "circumstance of effective components enhancing the aesthetic quality of urban landscape". In this research they investigated and presented the process of designing urban facades of Ahmadabad Street in Mashhad. The results show that the visual perception of urban facade as an integral part of the urban landscape has a significant impact on the quality of life of the citizens. It is necessary to pay more attention to this part of visual-aesthetic qualities in design processes.

Vahdat et al. (2015) aimed at exploring different aspects of street landscape and the visual reading of the urban landscape. They investigated the various factors that influence the quality of the urban landscape to be able to properly understand the elements of the urban landscape and organize it. Results of the survey showed that citizens' perceptions were significantly influenced through those streets and passageways that bear more

meaning and significance in their facades. This can increase the sense of attachment through the society to the public space of the city and increase levels of citizen presence in urban spaces.

Golkar (2001), believes that urban design initially came from the aesthetic positions of the city beautiful movement, but over time, other aspects such as functional, behavioral, environmental and others were included in main factors of urban design. It should be noted that in the model he has presented for the constituent components of urban design qualities, the aesthetic factor is applied alongside the two functional and environmental ones, as the main components of the built environment, which vividly shows us the powerful role this factor could play in urban design matters.

Theoretical Foundations

• Aesthetics

Beauty as a property of human existence and one of the crucial human needs (Pakzad & Saki, 2014) is a concept and a reality which human appetency towards it is integrated with human nature reality which human appetency towards it is integrated with human nature (Khakzand, Mohammadi, Jam & Aghabozorgi, 2014). The word of beauty is deceptive, just such as love, truth, freedom, and justice; this concept may seem quite simple at first glance, but exploring the meaning of "beauty" confronts us with a world full of ambiguity that makes it difficult to understand. The word of aesthetics is the concept of recognizing beauty, which first raised by the German thinker Alexander Baumgarten (Pazooki, 2011; Mousavi Sarvine Baghi & Sadeghi, 2016; Leilian, Amirkhani & Ansari, 2009). The word is derived from the Greek word "Aisthanesthai" meaning "sensory perception; what is sensible"; That is to say, the experience of aesthetics needs to transform through the sensory realm and pose into the human's subjective and semantic realm (Kholoosi, Behzadfar & Mohammadi, 2014; Grütter, 2018; Kashani Hamedani, Ghalenoei, Daneshpour, Faramarzi

& Shahivandi, 2015; Franssen, Vermaas, Kroes & Meijers, 2016; Soleimani & Mondegar, 2017) Generally speaking, the subject of aesthetics is the recognition of those factors that influence the perception of a beautiful or pleasing phenomenon or process, as well as the understanding of one's ability to create pleasing effects (Vahdattalab, Yaran & Mohammadi Khoshbin, 2018).

• Aesthetics in the Urban Environment

Since the late seventies, with raising the role of architects and urban designers in solving the challenges of urban aesthetics, the issue of architectural and urban landscape aesthetics has become one of the most important issues (Keshtkaran, Habibi & Sharif, 2017). Physical or environmental aesthetics is based on the abstract relationships of shapes and forms, the definition of space and those elements that make building forms enjoyable (Ghazanfari & Azareh, 2018).

The aesthetics of visual landscapes in the urban environment are of particular importance in social and ecological researches because of their impact on the vitality of the city and the mental peace of the citizens (Howley, 2011). Establishing a proper human-environment relationship is directly related to the ability of the environment to satisfy the diverse needs of its inhabitants (Del Angel-Perez & Villagomez-Cortes, 2017). Physiological needs are only a small part of a person's needs, while the rest of his needs fall under the category of mental-psychological ones, and the need for aesthetics is one of the most important of which is manifested in urban environments (Alfaraidy & Furlan, 2017; Lang, 2015).

In general, the subject of aesthetics can be examined in two theoretical and experimental domains. Theoretical aesthetics has dealt with philosophical and aesthetic issues and has no clear relation to environmental aesthetics (Tindale, 2014). In contrast, empirical aesthetics, which relies on individual experiences, analyzes and examines aesthetic experiences (Aminzade Goharrizi, Sharifi & Foroughifar, 2014). In empirical aesthetics, four

approaches of information, semantics, semiotics, and psychology are examined. In the information theory approach, the environment is seen as a set of stimulus messages, in which the message is received is dependent on the structure of the information sent from the environment (Snoeyenbos, 1978; Ghasemabad & Sharifabad, 2017).

In urban design and development, the physical-aesthetic dimension of urban space aims to create a pleasant and enjoyable feeling in the urban environment, which is considered to be as one of the most important qualities. The aesthetic value of urban landscapes has always been the focus of city developers due to their direct impact on citizens' perceptions and mentality, and the body and facades of the streets and squares are essential aspects of their effective designs (Alavi & Mehri Talarposhti, 2015; Jennath & Nidhish, 2016).

The architectural form and physical-visual features of a building give it a unique identity and separate it from other elements of the city (Baper & Hassan, 2012; Askari & Dola, 2009). According to Lynch, physical-visual qualities within a particular area are one of the essential factors for forming the mental imagery of citizens (Kurniawan, Putri & Wardhani, 2017). These qualities inspire some specific aspects of the city's imagery that are closely related to the visual landscape of a given region and are among the most significant factors influencing the aesthetic qualities of a city (ibid). The body and facade of an architectural element is the point of contact between the building and space, and the appearance of their aesthetic qualities is a significant part of the city, which play an important role in organizing and structuring its appearance, closely related to the identity and nature of the city (Jennath & Nidhish, 2016; Shuker Al-Hinkawi, 2016; Utaberta et al., 2012).

According to Santiana, an environment, especially a built environment, would be enjoyable if it is beautiful. He divides the prerequisites of this beauty into three categories of form, symbolic and sensory. Each of these categories considers the

beauty of the environment as the visual proportion, the meanings received from the environment, and the sensory desires of the five senses (Gibson, 2015; Cuthbert, 2006; Gopal & Raghavan, 2018). Symbolic aesthetics refers to the associative and pleasurable meanings of the environment, therefore, in such a situation, symbolism will be the cause of the enjoyment or not of the environment (Kashani Hamedani et al., 2015; Leilian et al., 2009). Sensory aesthetics are initially psychological and are the result of touch, smell, taste, hearing and seeing (Da Luz Reis & Dias Lay, 2009). Formal-visual aesthetics provide the principles and patterns by which visual components of the environment can be organized, and they provide principles of component composition; this type of aesthetics does not indicate what form and shape carry the aesthetic quality. The underpinnings of this kind of aesthetics, especially those of the twentieth century, are based on Gestalt theory, where the way in which people perceive different environments is considered to be substantially identical (Lang, 1984; Pazooki, 2011).

Visual aesthetic theorists have proposed several criteria and sometimes implying common meanings. An overview of the requirements for urban visual aesthetics is shown in the table 1.

According to the definitions, in defining and evaluating the aesthetics of urban facade within the scope of the present study, relying on the criteria proposed in visual aesthetics; four general criteria of order, unity, equilibrium, and scale will examine the coordination, divergence, and continuity of the necessary investigations. Then, in order to analyze the visual aesthetic features of the urban landscape, it is necessary to weigh the selected criteria on the components of the environment. Since the components of a visual phenomenon are classified according to four general types of shape, color, texture and line, therefore, in this study, façade pillars and components were analyzed based on these dimensions and results of this study are presented in the form of visual facade parameters of visual and aesthetic analysis (Table 2).

• **Concept of Urban Landscape**

“Urban landscape” term was first introduced into

Table 1. The visual aesthetic criteria from the experts’ point of view. Source: Authors.

Book title	Author	Visual Aesthetic Evaluation Criteria
Creating architectural theory: the role of the behavioral sciences in environmental design	(Lang, 2015)	Order, proportion, generality
The Art of Building Cities	(Sitte, 2016)	Generality, harmony, diversity
Responsive environments: a manual for designers	(Bentley, 2015)	Visual complexity, contradiction
Aesthetics in Architecture	(Grütter, 2018)	Harmony, contradiction, unity, proportion
The concise townscape	(Cullen, 2013)	Unity in plurality, unity, contradiction
Urban Space Design	(Tavassoli & Boniadi, 2016)	Order, unity, harmony and proportionality of the whole body, divergence
Public Places, Urban Spaces	Carmona, Heath, Tiesdell & Oc (2010)	Order, rhythm, balance, harmonious communication

Table 2. The visual parameters of any single facade. Source: Authors.

Different components of a visual phenomenon	Facade components - visual parameters
Shape	Façade shape, Entrances, doors and windows shape / Entrances Properties
Color	The dominant color and other colors used in the façade
Texture	Facade Material / Material Luminosity / Facade Transparency
Line	Sky Line / Vertical and Horizontal Lines / Horizontal and Vertical Extensions / Entrances Location

the scientific and professional design literature of Iran by Mozaiani in the 1950s, with the translation of Kevin Lynch's book entitled "Image of the city". In general, the landscape of a city refers to all physical and social features of the built environment and how it is perceived by the citizens through its symbols and landmarks (Riverside Energy Park, 2018; Mansouri, 2010). In his book, Urban Landscape of Italy, Wolf described the urban landscape as a visual art and, most importantly, an artificial that influences all aspects of the city's art. In other words, the urban landscape deals with a diverse set of buildings and their visual and structural integration with one another, the streets and the places that make up the city in an integrated whole (Zhao, Hanafi & Wong, 2018; Liu, Carta & Sopeoglou, 2018). It is clear that different thinkers have generally attributed the urban landscape to different dimensions of the city, focusing more on the visual aspect. But in a general definition, and based on what has been learned from previous studies, the general landscape of the city includes three categories of visual - aesthetic, semantic - perceptual and functional components; that visual-aesthetic component consists of two categories of objective and subjective criteria. The objective factors, which are divided into three categories: mental, physical and visual, bear a set of natural and artificial factors. In general, based on surveys and in response to the first research question on identifying the components, criteria and indicators of urban landscape, these components and indicators are presented in table 3.

• Urban Facades

Urban facades are the dominant face of the city (Abbasi, 2017). In Dekhoda's encyclopedia, this concept is defined as "the form and appearance of any phenomenon, whatever is exposed to the viewer, the exterior view of every building and mansion". Pakzad also referred to the facade as the constituent surface of each building and believed that the facade of each building is the part of its body that forms its shell (Pakzad, 2004).

- Elements of Urban Facade

Based on the existing literature, elements of the building facade fall into three categories: 1- Major sections of the facades; 2- Facade pillars; and 3- Facade components. These elements will be explained below (Fig. 1).

1- Major sections of the facades

Moughtin and Tiesdell (1999) have divided major sections of a building's facades into three horizontal sections and one vertical corner section, which are: 1- Ground floor - the basement part of the building, which connects it to the ground floor and the street, and is part of the facade that is mainly viewed by observer. 2- The middle part that covers the main floors of the building. 3- Roof, which connects the building to the sky by the roofline (Moughtin & Tiesdell, 1999). According to Tavassoli and Boniadi (2016) the components of the first part (ground floor) of the building can lead to a horizontal rhythm with the proper layout. Krier also referred to it as the most important part of the facade because it is in front of pedestrian views (Krier, 1983).

The corners of the building are important parts of the building, mostly associated with their adjacent views and, if they are optimally designed, they would be a good opportunity for an attractive landscape design. Moughtin and Tiesdell (1999) cited building edges as a visual element, while Tavassoli and Boniadi (2016) cited building edges as a communication factor, whose proper design could enhance richness of the urban body composition (Atarod & Kashi, 2018).

2- Façade pillar

At a smaller level and in a combination of buildings with each other, Tavassoli and Boniadi (2016) have divided the elements of the building's facade into components and pillars, believing that there must be consistency, agreement, and communication between these elements in the whole part of building facade.

Vertical and Horizontal elements: Elements whose repetition in the facades causes horizontal and

Table 3. The components, criteria, and indicators of the city’s landscape. Source: Vahdat et al., 2015.

Components	Criteria	Indicators
Visual - aesthetic	Objective	Visual → Street and visual arts such as graphics, murals, advertising, ... Billboards / Facade Materials, Color, Form, and Window distribution in Facades / Enclosure and Proportions of Facades / Balance and symmetry / Skyline and Building line / Unity and Spatial Integrity
		Formal
	Natural elements → Parks / Green spaces / Trees / Fountain	
Subjective → Appeasement / Relaxation / Creativity / Meaningfulness / Attraction		
Semantic - Perceptual	Identical - Locational	Cultural - historical → Cultural and historical values / Historical events / Individual and congregative events / Customs and rituals
		Formal - Physical → Monuments / Landmarks and Symbols / Visual and Physical Indicator Elements
	Sense of belonging → A sense of belonging and attachment to a place / strong mental image / sense of safety and security	
	legibility → No sense of alienation with space / Transparent mental image / sense of legibility and familiarity with the environment	
Functional - Activity Component	Sociocultural → Incorporating / enabling social and natural surveillance / Social interactions in space / Boosting the quality of pedestrian-orientation / Creating a space for the presence of different cultural institutions	
	Activity → Diversity, diversity and mixing in activity and uses/ Attractive and pedestrian-friendly uses/ space adaptation with behavioral patterns	
	Functional	Active conflict with the environment → Installing fountains / reinforcing visual corridors
		Inactive conflict with environment → To See and being seen
	Ability to explore the environment → Attending in social interactions	

vertical rhythms staircase shelves, balconies, overhangs and troughs and so on. Krier believed that vertical and horizontal elements should not be distributed randomly across the facade.

Façade lines: These lines are the most important geometrical element that connects the facades of buildings and creates favorable order between them. These lines are divided into four categories: 1- Baseline 2- Ground floor line 3- Floor lines 4- Roofline.

3- Façade components

Kreir believes that facade components are not

merely decorative, but sometimes functionally indispensable. Therefore, the facade components can be generally divided into two categories of functional and decorative components. As functional components include: Building entrances, balconies, terraces, verandas and windows, and decorative components include facade details (Krier, 1983).

Research Site

The study area of this research is the area between

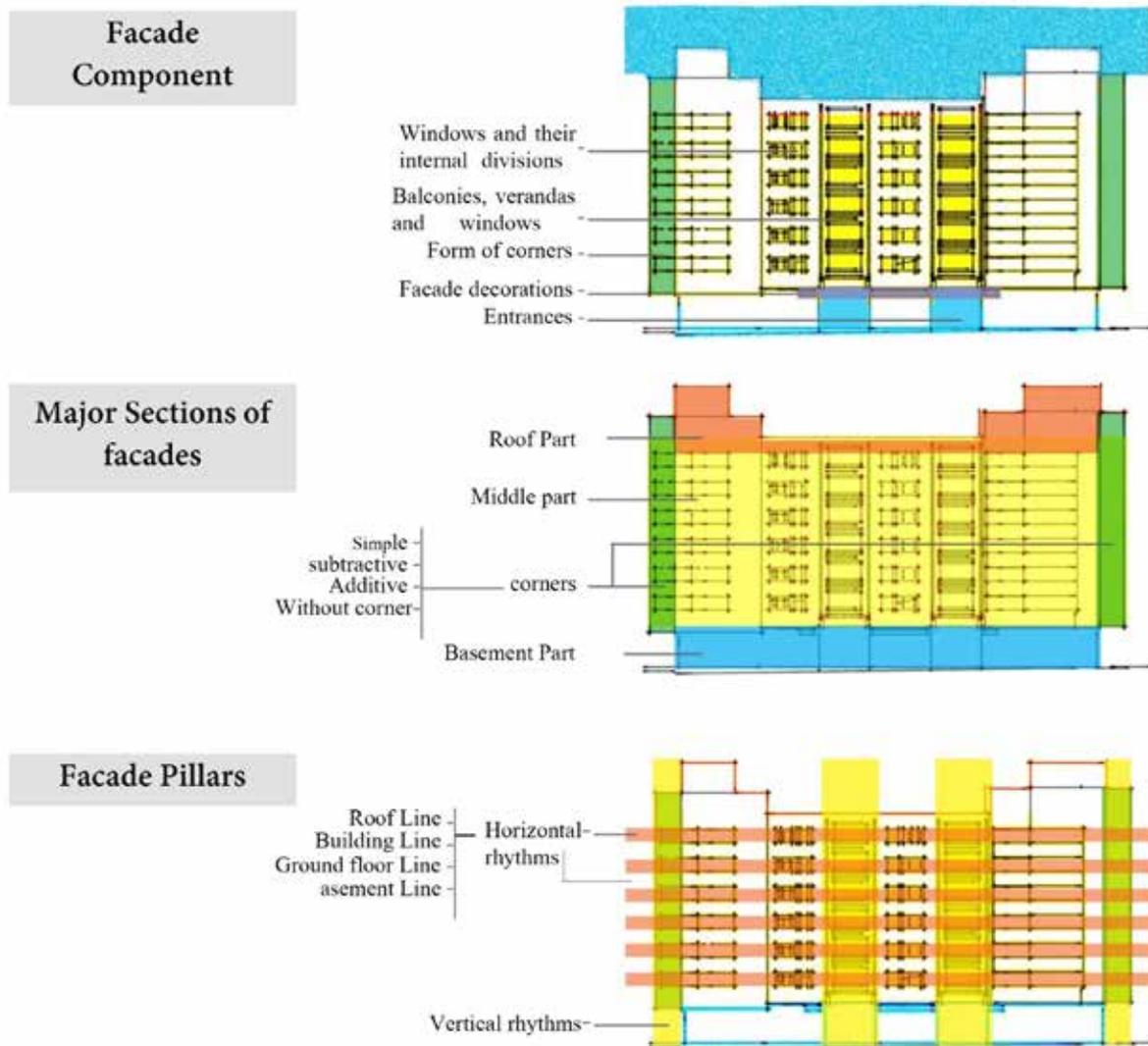


Fig. 1. The constituent elements of urban facades. Source: Atarod & Kashi, 2018.

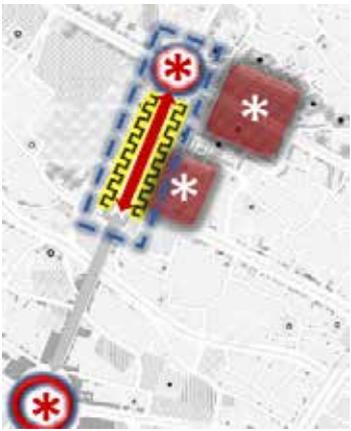
Namaki intersection and Enqelab Square in Sanandaj, Kurdistan province. This is the most important part of the city and is a focal point for many of the city’s day-to-day affairs (Table 4). The route has numerous sequences on both sides and is surrounded by buildings with low visual values. The composition of the facades of the street is much uncoordinated in terms of form, color, and the proportions and dimensions of doors and windows. It also suffers from challenges such as incompatibility between space and activity and visual contamination caused by the clutter of

boards and other attachments. This makes the street space worthless, proving the need for redesigning and upgrading the facades.

Research Methodology

The present study uses applied research and descriptive–analytical research as its methodology. Its purpose is to find a mechanism to organize the qualities of urban aesthetics. This research explores the concepts of the aesthetics of facades, in order to identify the key criteria and indicators of the urban aesthetics. Also, by specifying the necessary

Table 4. The area of the study. Source: Authors.

Study area	Valuable elements around study area	Architectural features of the area
 <p data-bbox="167 788 582 846">Located Region Two, District Four, middle part of the city.</p>	<ul style="list-style-type: none"> - The traditional market of Asif and Sanandaji - Local fruit market - Azadi Square (inner city addressing reference) - Enqelab Square (inner city addressing reference) 	<p>This street is located in the main core of Sanandaj and its neighborhoods are among the old and historic neighborhoods of Sanandaj.</p>

principles for the mentioned purpose, a framework of rules and regulations for the design of urban facades would be developed. The objectives of this research can be defined in two levels:

Macro-level: Achieving aesthetic criteria and parameters of urban facades and landscape for gaining accurate understanding of the practical principles in urban landscape design.

Operational Level: At the micro-level, the purpose of this study is to evaluate and measure the selected facade of the study area through extracted parameters; in this way, we can create such an urban space which offers desired performances, beauty and perceptibility to the observers by providing some optimal design solutions.

• **Analysis of the Status Quo**

Visual analysis can be carried out in a variety of ways and from different aspects, such as scale, purpose, and utility. Since aesthetic analysis is based on visual criteria, which can be easily captured in raw images, it is, therefore, more feasible to use this method for the present project. The current research process is based on visual-aesthetic criteria. The method is based on an analysis of four general criteria (including order, unity, equilibrium, and scale) and four micro criteria (including rhythm, harmony, divergence and continuity). In the next phase of the research,

in order to analyze the visual-aesthetic properties, it was necessary to measure specific components of the environment using the specified criteria, since components of a visual phenomenon are grouped into four general types of shape, color, texture and lines, and façade pillars. These were also analyzed based on the presented dimensions. The results of this study are presented in the form of visual facade parameters to perform the visual-aesthetic analysis as follows:

Shape: Facade, Entrances, doors, and windows / Facade properties.

Color: The dominant color and other colors used in the façade.

Texture: Facade material / Material luminosity / Facade transparency

Line: Skyline / Vertical and horizontal lines / Horizontal and vertical extensions / Entrances location

The aesthetic analysis of urban facades with respect to the above criteria and communication factors are presented in the following two ways:

- **Dynamics of Form Method**

According to Arnheim, this approach is based on the principle that asserts that the universe is a visual entity, which is different from the sum of its constituent elements and cannot be broken down into these constituent elements. The totality

of a visual nature is different from the sum of its constituent elements and cannot be broken down into its constituent elements (Arnheim, 2015; Jeddi, 2016).

- Mesh (Networking) Method

In this method, a basic grid is drawn to analyze the status quo so that it covers the entire target-area of the façade buildings. Then, the evaluation criterion in each cell is quantified. Thus, each cell is scored based on the fulfillment of criterion in it (Abaei, 2010; Karimi Moshaver, 2014).

These methods can be applied at different scales in the design and analysis process. Since the methodological method emphasizes the totality of environment, image, or effect, it is used to examine the criteria of order, unity, balance, and scale. The network method also applies to the nature of the subject matter being studied and will be used for smaller criteria such as rhythm, coordination, contrast, and continuity (ibid; ibid). In the visual analysis of the target facade of this study, both adjacent facades have been investigated by grid method. Each criterion will be considered visually for each parameter (Table 5).

• Analysis Process

The process of analysis in this study was initially a large matrix consisting of a network of cells 4 m long and 2 m wide, which was projected on the eastern and western facades of the street. For

each set of visual parameters and parameters, two adjacent facades (two adjacent building facades) were analyzed using the mesh method. Accordingly, each facade has been analyzed twice, with the exception of the buildings located at each intersection, which has only one adjacent building. The result of the analysis was given as points for each cell of the analysis network, which indicates the degree of correlation associated with each criterion for each visual parameter in each cell. Figures 2 and 3 show the analysis of each criterion (rhythm and shape of the doors and windows, coordination and shape of the inputs, rhythm and vertical lines, continuity and proportions of inputs). After calculating the scores for each criterion, the sum of all criteria in the two-faceted visual communication improvement potential analysis network were calculated for all visual parameters. In each cell of the networks of both facets, scores of all binary combinations of criteria and visual parameters were summed (two stages of analysis of one facade with west and east facade and one stage of analysis of buildings located at the intersection). Then the final network of visual communication improvement potential of all the views of the study area were calculated. Figure 3 shows cells that have different visual communication improvement potentials.

The results obtained from the analysis serve as a

Table 5. The relationship between micro-visual aesthetic criteria and visual parameters. Source: Abaei, 2010.

Micro criteria	Rhythm	Coordination	divergence	Continuity
Facade components - visual parameters				
Facade shape	*			*
Entrances, doors and windows Shape and Proportions				
Facade Material	*	*	*	
Material Luminosity	*		*	
Facade transparency	*		*	
The prevailing color / colors used in the facade	*			
Sky line / Vertical and horizontal lines				
Horizontal and vertical extension of doors and windows			*	
Location of entrances		*	*	*



Fig. 2. The panoramic views of the selected facades and homogeneous area divisions.

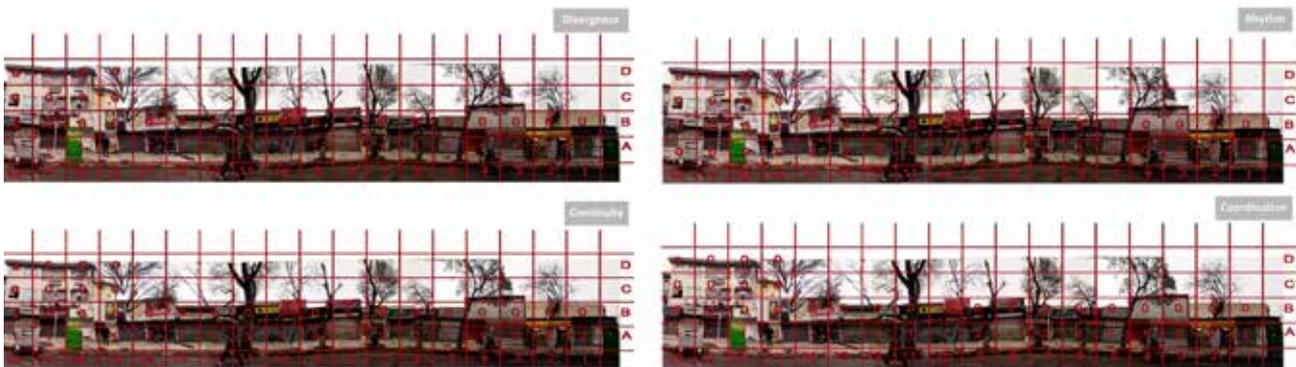


Fig. 3. The evaluation of the criteria of rhythm, coordination, divergence and continuity on the shape of the building entrances. Source: Authors.

basis for providing urban design guidelines for urban facades and can be used by designers for improving visual relationships within the design process.

Results of the Analysis

Rhythm of Entrances Shape: Although the existence of rhythm in the shape of the entrances require a shape to be repeated at two levels at regular intervals to provide unity and order at the level of the two facades, in the entrances of buildings 1 and 2, the pattern of shops in regular intervals are not repeated over two views.

Coordinate Entrance Form: The quadrilateral form of the entrances could be assumed to be a factor of similarity and harmony. This shape can be seen as a different and modified form of a base square in the facade of two buildings. A-row cells take different

amounts due to the placement of the harmonic shape in the entrance of buildings. The value of each cell is equal to the number of entrances that are centered on the cell. The axis of each input is a vertical line passing through it.

Divergence - Vertical Lines: The vertical lines of the two buildings are confined to the entrances and panels of the ground floor (row of shops). Buildings do not have vertical lines. Therefore, the mere presence of vertical lines on the ground floor is regarded as a pattern of divergence. A-row cells receive a score of 1 because of the existence of vertical lines in their divergence.

Continuity and Computing of Entrances: In the combination of computing of entrances of two buildings, the square base proportions, and their modified shapes can be seen as a fixed pattern

in which the two buildings are repeated in linear endurance, and the proportions of the entrances are the main reason for its continuity. It should be noted that all entrances are a modified function of the basic equations. Each cell is scored by the number of entrances in which its axis is based. The axis of each entrance is the line in which it is located.

Design Process

The design of this study was done using GAM¹ method and based on the potential rating of the investigated areas. Given the ultimate network of potential for enhancing visual relationships and relying on building potentials, some areas have higher and some have lower potentials. This has given buildings a variety of ratings in order to help authors to enhance the visual quality of the facades. In the design process, the communication quality of high potential areas will be maintained at a higher rate than medium and low potential areas. And as a result, their potential and desirable quality resulting from their change would be considered as the capital of the study area, and they fall into the first step of the design. Areas with less potential will be at the next design step. And we will try to design them in line with the previous design presented for buildings designed in first step (buildings with high potential).

In order to establish the proper communicative design of a building with other adjacent ones, buildings have undergone adaptable actions. In fact, depending on the possibility of moving facade components and pillars, micro-changes have occurred in the facades of buildings. In the first steps of such an adaptable action, extensions such as boards were changed. In the second step, facade components and elements (including window frames and vertical and horizontal stripes that do not interfere with building structure) were transformed to establish interconnections between buildings. In the following, and in response to the second research question about the necessary

strategies needed to improve the quality of facades in the study area, with emphasis on the aesthetic discussion of the urban landscape, the most important design guideline to perform the step-by-step design process is provided:

- Coordination of building components and pillars
- Windows deformation in harmony with windows of historical and valuable buildings
- Coordinate the dimensions and size of horizontal and vertical divisions; to unify whole of the facade
- Modify the skyline and follow the principle of continuity - harmony - rhythm in the horizontal lines to create a balance in the whole of the façade.
- Add vertical stripes to the facade details in order to create harmony, order, and unity
- Create harmony, order, unity in the materials used in the facade.
- Window deformation in harmony with windows of valuable buildings.
- Defining and designing local market's entrances to identify its facade and to get its historical values enhanced.
- Add metallic grid fences with a geometrically coordinated texture to the terraces of the buildings.
- Obeying shapes, colors and dimensions of boards from the principles approved by the municipality.

Discussion and Conclusion

The importance of influencing the visual qualities and semantic dimensions of the built environment necessitates paying attention to the beauty and identity of the landscape and urban facades as key factors in urban design. Facade as a distance between inside and outside of each building is the main focus of assessments put forward by pedestrians and residents of public spaces in cities and it has had a profound effect on the mental image of citizens. Studies of the aesthetics of urban facades have shown that the aesthetic debate has always been one of the main influential aspects of pedestrians and residents' interpretation of environmental and landscape qualities. As other papers and researches have shown, the formal

qualities of urban facades are an integral part of the urban landscape that influences the citizens' quality of life through the visual perception channel. It is therefore imperative that all aspects of the physical aesthetics of the public space of cities, in particular, the old texture, which has undergone more non-standard interventions than other parts of the city, be further scrutinized so as to reinforce the identity of these textures and to present them as vibrant spaces.

The purpose of this paper was to investigate and evaluate the formal qualities of the Enqelab street facades by networking and coding each of the dimensions and components and identifying its weaknesses and shortcomings and providing an optimal redesign guideline for selected street facades. The method selected for weighing and evaluating the investigated facades is one of the new approaches that have been used in limited researches before. In the proposed design process, it was attempted to create a flexible, contextual and indigenous process, utilizing existing experiences and with a particular view of the components of visual aesthetics. We tried to create a flexible, contextual, and indigenous process, using existing experiences and with a special focus on the components of visual aesthetics. It should be noted that the selected analysis and evaluation method does not exactly indicate which part of the facade is aesthetically pleasing, rather, it relates the desired quality to all the sensory, formal and symbolic dimensions of aesthetics. In this way, only those qualities would be in the focus of attention that by exerting optimum interventions they could get formal aesthetic qualities enhanced, and by providing an understanding of the visual potential of the facade, enhance the visual discipline of the urban landscape.

The results of applying this method in examining and evaluating selected facades and existing coding have shown that the shape of the shops is not repeated at regular intervals across two facades, and all of the matrix cells have a low

figure due to the lack of repetitive shape at regular intervals. Also, there is no specific coordination in the shape and design of these shops and somehow they appear to be exclusively uncoordinated with neighboring units, this has caused all the cells in the matrix to fall into a low digit proportion due to the lack of a regular repeating pattern. Due to the inconsistency in the storefronts as well as the vertical lines of the two buildings confined to the entrances and panels of the ground floor and (row of shops), it has also caused the dominant vertical lines to disappear.

According to what was discussed, it should be noted that the urban facades of Sanandaj Enqelab Street need to be redesigned and improved in some components in their urban landscape such as order, unity, balance, proportion, scale, harmony, rhythm, continuity, and continuity. By putting all these elements together, a coherent whole would be created in accordance with the historical architecture and identity of the area and get the aesthetic aspects and visual qualities of the objective view of this urban facade promoted.

Endnotes

1. Goal Achievement Matrix

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