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# Analyzing the heritage of Tehran's urban façades in the recent century

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## Abstract

Urban façades have been one of the most crucial issues in Iranian urban development and the disorder that has been around in this field reflects the unstable situation of the society. In spite of the clarity of the concept of façade in scientific circles as well as the fact that it has turned into a major concern among urban managers over the last decade, urban façades are still suffering from a severe lack of organization. The reason may be our narrow view of façade which confines it to its physical aspects. To this end, the present study seeks to analyze the architectural heritage of the city of Tehran over the recent century in terms of urban façades in order to develop a map of the way for the future. Thus, by drawing upon grounded theory and in-depth interview with experts, the factors affecting the evolution of urban façades in Tehran during the late Qajar period, Pahlavi dynasty, and the Islamic Republic of Iran were identified and the dominant styles of each period based on the identified factors were publicly evaluated in terms of identity, beauty and showy by means of a questionnaire.

**Keywords:** Urban façade, Architectural heritage, Façade transformation, Tehran

## Introduction

Urban façades are among the most influential factors of the visual quality of the city. The façade is primarily important in that it is the face of architecture and acts as an entry to the architectural heritage of a city or country (Crocì 1998). Secondly, every building has an interior and an exterior; the interior interacts with the inhabitants whereas the exterior interacts with all the people. Therefore, façade is important both in terms of its subject and in terms of the wide range of its audience. This importance is doubled when we consider the positive and negative effect of urban façades on stress, anxiety, fear, security, happiness, and people's mental health in general (Grahm and Stigsdotter 2003; Kweon et al. 2008).

In Iranian cities, the disorder and incongruence of urban façades have made them one of the main challenges current urban development, which is much less frequently the case in European cities. Little theoretical research has been done to analyze the reasons behind this

chaotic situation. As the majority of studies have focused on the content and physical aspect of façades, we have not gained a comprehensive understanding of the major dimensions of the formation of façades over the course of time so that we could more effectively form a legacy for future generations based on the heritage of the past.

To this end, the present study attempts to analyze the key factors in the evolution of urban façades in Tehran during the late Qajar period, Pahlavi era, and the Islamic Republic of Iran. We have extracted the visual features of façades including the combination of mass and space, geometric principles, skyline, materials, color, openings, ornaments, structural system, and relationships between elements by means of the analysis of images from each period. Also, the production process, the involved actors, and the effective forces were studied in each case so that we could have a deeper understanding of the formation of the mentioned heritage.

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## Literature review

### Qajar

With the beginning of the Qajar period (1796–1925), the architectural style has been changed to some extent due to the extensive foreign relations of this dynasty with the West and the beginning of modernity in the country. Although Qajar architecture was influenced by Western architecture and introduced some new public spaces such as squares, streets, parks, and public buildings, it did not lose its traditional identity, and the architectural style of this period, which is called the “Maktab Tehran” can be considered as a continuation of “Maktab Isfahan” in the Safavid period. In the formation of the architecture of this period, two categories of internal and external factors are involved. Internal factors are derived from the former traditional architecture of Iran, especially the Safavid era. The footprints of traditional architecture with its unique features and components such as introversion, centrality and balance could be also seen in the Qajar buildings. In addition to internal factors, in the formation of Qajar period architecture, we can also refer to external factors that have a global origin. Some of these external factors are the trips of Qajar kings, especially Nasser al-Din Shah, to Europe and other countries such as Turkey and Egypt, which contributed to the development of the city based on European urban planning measures; Iran's participation in the Paris World Exhibition; the study of Iranian architects in France and the presence of European architecture teachers in the Academy of Arts; the emergence of carriages and cars as a means of mobility that created a special style in Qajar architecture; and the presence of Russian and Armenian architects in the construction of Western-style buildings (Grigor 2007; Panahi et al. 2013; Akhgar and Moulis 2021; Bani Masoud 2009; Ghobadian 2021) (Fig. 1).

### Pahlavi

The developments that were founded in contemporary Iranian architecture and urban planning during the Qajar era, emerged in the first Pahlavi period (1926–1940). At this time, a serious movement began in the transformation of traditional introverted architecture into an extroverted architecture. Due to some reasons, in this period, the architectural styles of private and public buildings were based on the late Qajar architecture, neoclassical architecture and nineteenth-century European architecture, ancient architecture of Iran, and the early modern style. Compared to the Qajar period, some contributing factors are a continuation of that time and have similar effects on the architecture of this period, such as the dictatorship of the government, the sharp drop in the country's manufacturing production, and the traditional



**Fig. 1** The urban facade building of the late Qajar period in Tehran, Naser Khosro St.

attitude of the people. Some other factors have greater effects on private buildings compared to the previous period, such as modernism, foreign relations and the presence of Westerners in Iran and sending students abroad. Some new factors, which did not contribute to the Qajar architecture, also influenced the architectural style in the first Pahlavi period, such as the emergence of the middle class, the presence of European architects, and the great accessibility to new construction materials (Moussavi-Aghdam 2012; Hassanpour and Soltanzadeh 2017; Sattarzadeh and Balilan Asl 2015; Akhgar and Moulis 2021; Zarkesh 2011).

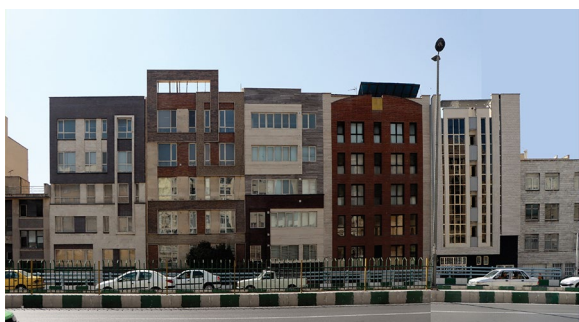
In the first Pahlavi period, the rulers tended to live the Western lifestyle and cut off the past, and this desire gained even more momentum in the second Pahlavi period (1941–1979). From the late 1950s onwards, some remarkable public and private buildings were designed by foreign architects, Iranian architects returning from the West, and architects graduating from Iranian universities. The consequences caused by the increase in oil price and the increase in national income in this period also had significant effects on architecture and urban planning. The acceleration of economic growth played a pivotal role in the formation of modern architecture in Tehran (Bani Masoud 2009; Ghobadian 2021; Sobat Sani 2012) (Fig. 2).

### Islamic Republic

Since the Islamic revolution is a turning point in the history of Iran, its effects can be seen in architecture too. From 1979 to about 1988, buildings were mostly constructed based on pre-revolutionary styles due to socio-demographic factors and the outbreak of the Imposed War. Due to several reasons, from about 1986, a wide range of architectural styles are followed



**Fig. 2** The urban facade buildings of the Pahlavi period in Tehran, Enghelab St.



**Fig. 3** The urban facade buildings of the Islamic Republic period in Tehran, Shahid Gornam St.

by architects and constructors such as modern architecture, international style, postmodern architecture, the classical architecture of the West, and Iranian-Islamic architecture among many others. Some factors in the continuation of the Pahlavi period causes similar effects on architecture. These factors include economic and social problems and people's income, the employer's point of view, the new aesthetic attitude arising from the new advancement in technology, and the postmodernist attitude, travel of rich people to foreign countries (Europe, etc.), and direct observation of the architectural styles of those countries, population growth and high demand for housing, the high rate of graduated architects, new materials and manufacturing techniques, and government laws. Some other factors are more intense than in the previous period and have more effects on the architecture. These factors are related to decreasing in national income, the phenomenon of fashionism, the high pace of change, the information technology development, and improving literacy (Diba 2012; Bani Masoud 2009; Zarkesh 2009) (Fig. 3).

## Research method

Underlying this research was grounded theory and Strauss and Corbin's systematic approach. As urban façades may vary from a specific context to another, grounded theory seems appropriate to approach the topic because it is used for investigating specific situations about which there is a lack of research and it deals with the process of something that happens as well as its consequences (Strauss and Corbin 1994). In this method, the causes of the formation of urban façades in Tehran are described by experts and, at another level, the descriptions are elaborated to develop a theory which could explain the evolution of Tehran's urban façades as the main topic of this research as well as the causes, the intervening and contextual conditions, the strategies, and the consequences. For this purpose, we decided to study the dominant types of façade in major streets of Tehran due to the fact that it is the capital city of Iran and its lead is followed by the other cities.

## Participants

In the first step, we used purposive snowball sampling for selecting our sample from among academic experts, professionals, and urban managers and performed in-depth interviews with eight participants until theoretical saturation and data saturation was achieved. The interviews were conducted from October 2 to October 28, 2020, with each interview taking 20 to 45 min and the average duration being 35 min. The age of the participants ranged between 40 to 70 and their work experience was from 6 to 45 years. Their academic education was in the field urban design and architecture (Table 1). The interview questions was comprised of four parts: (1) historical classification of the periods of façade changes over the recent century in Tehran; (2) identification of the exterior feature of façades in each period; (3) analysis of the forces affecting the formation of façades; and (4) raising some questions on the spot depending on the interviewees' responses.

## Data analysis

In the second phase, the interviews were transcribed as text. The data underwent open, axial, and selective coding and analyzed by means of ATLAS.ti v9.0. By dividing the text into open codes as well as relating them and making networks, this software package reduces data and combines and merges codes so that the researcher would get rid of the problem of memorizing large amounts of information and becoming confused. As in other qualitative studies, the validity and reliability of the data were confirmed through inter-subjective agreement as well as re-coding and revising previous codes. The coding process

**Table 1** List of participants

Years of experience	Academic/managerial/executive rank	Service location	Last degree	Gender
30	Architecture Professor	Shahid Beheshti University	Ph.D. in Architecture	Male
30	Urban Design Professor	University of Tehran	Ph.D. in Urban Design	Male
12	Architecture Professor	Tarbiat Modares University	Ph.D. in Architecture	Male
6	Urban Design Assistant Professor/Member of Façade Commission	Tarbiat Modares University	Ph.D. in Urban Design	Male
11	Urban Design Assistant Professor/Member of Façade Commission	Tarbiat Modares University	Ph.D. in Urban Design	Male
7	Architecture Associate Professor/Member of Façade Commission	Tarbiat Modares University	Ph.D. in Architecture	Male
27	Mayor	Municipality	Ph.D. in Urban Design	Female
15	Urban Engineering Manager	Department of Consulting Engineers	Ph.D. in Urbanism	Male

was conducted as follows: (1) open coding: emphasizing key concepts in the text about the subjective understanding of urban facades and coding the text, 87 codes were identified from the total number of interviews. (2) axial coding: similar concepts were grouped together to develop sub-categories. (3) Finally, the identified sub-categories were classified into 6 main categories and the linkages were made among them.

### Evaluation of components

In the final phase, we collected and analyzed people's perceptions of the façades of the different periods via an online questionnaire which was based on our prepared list of factors. For this purpose, a certain number of building façades was selected for each period due to the following criteria: (1) the article focuses on the residential buildings as this type of building has the largest proportion of the land area in Tehran (28.8%) and so it better introduces the identity and the landscape of the city; (2) the predominant housing typology in Tehran is back-to-back buildings which locating a mass on one side of the street and an empty space on the opposite side. This paper includes both apartments and single-family houses. It should be noted that due to limited technical construction and material, single-family houses are the only building typology in the Qajar period (Fig. 1); (3) the majority of buildings are selected from Shariati street and its adjacent area as it is one of the main streets that play an important role in the contemporary urban structure of Tehran, plus it includes a wide range of architectural styles (Fig. 2); (4) the number of residential buildings chosen for each period depends on the number of building styles. Given the consistent architectural principles in the late Qajar period, only one building was shown to the participants. With regard to the Pahlavi period, five images were selected to represent almost all the main architectural features applied in the residential buildings

of this period, and regarding the Islamic Republic, nine images were chosen due to the great variety of façades styles, the lack of clear architectural principals and the advancement in the materials. In total, each respondent was provided with 15 images of building façades from the three periods, but it should be taken into consideration that these buildings do not definitely represent the whole architectural styles of these three periods. The images were not sorted in chronological order so as not to bias the respondents' attitudes toward a certain time period.

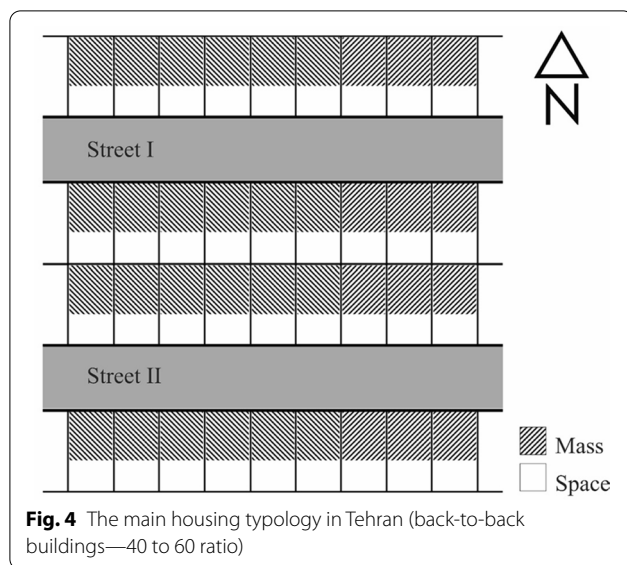
The sampling in this phase was through random classification of students from different majors at Tarbiat Modarres University, Tehran. Using the Morgan table, the sample size was determined to be 320. The male to female ratio was about 3 to 1 and the majority of participants were MA students aged 24–30. The evaluation was performed via items with a 5-point Likert scale and posing four questions. One general question: how are the façades on these images for Tehran? And three specific questions: (1) How compatible are the façades with Tehran's identity? (2) To what extent are they aimed at boasting? (3) How much visual beauty do they possess? (Figs. 4, 5).

### Findings

#### The transformation of urban façades

The inductive findings of this study which were obtained in the context of Tehran resulted in a theory whose central phenomenon is the transformation of urban façades in this city. Three groups, i.e. managers, architects, and investors, have affected the formation of façades in each period in different proportions. According to our paradigmatic model, casual conditions are those which directly lead to the focal phenomenon and arise in specific environmental and contextual conditions rather than in a vacuum; therefore, explaining these models requires an understanding of the





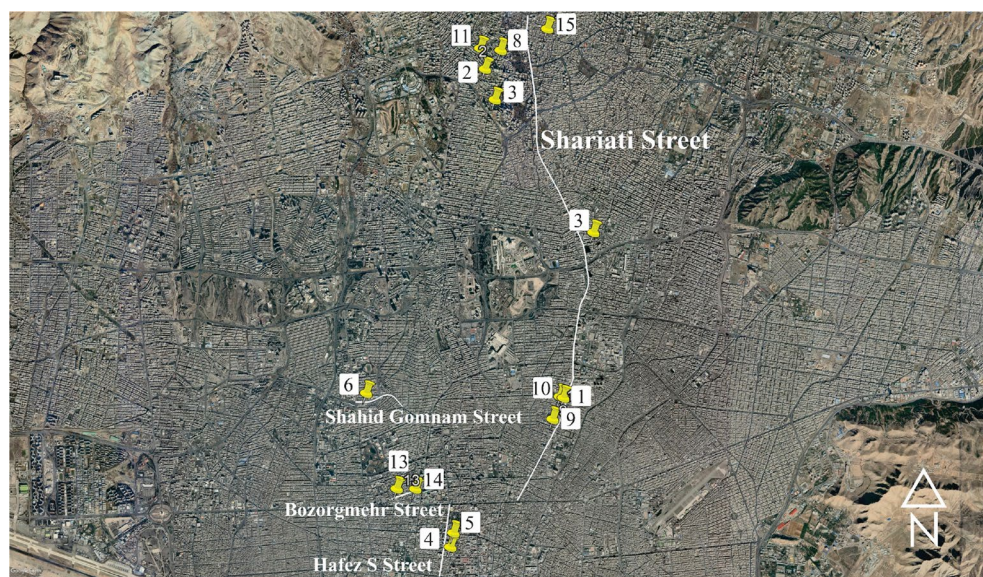
situation. Our findings suggest that the economic, social, and political conditions governing the society are responsible for these effects whereas global conditions, technological progress, and laws and documents are intervening variables in the process of the transformation of urban façades which may only moderate or intensify the casual conditions. It is in such a position in the field that we may observe strategic actions and reactions with regard to the identity, ethics, and aesthetics of urban façades. The findings also show that

the running processes have led to various consequences in different periods over the recent century (Fig. 6).

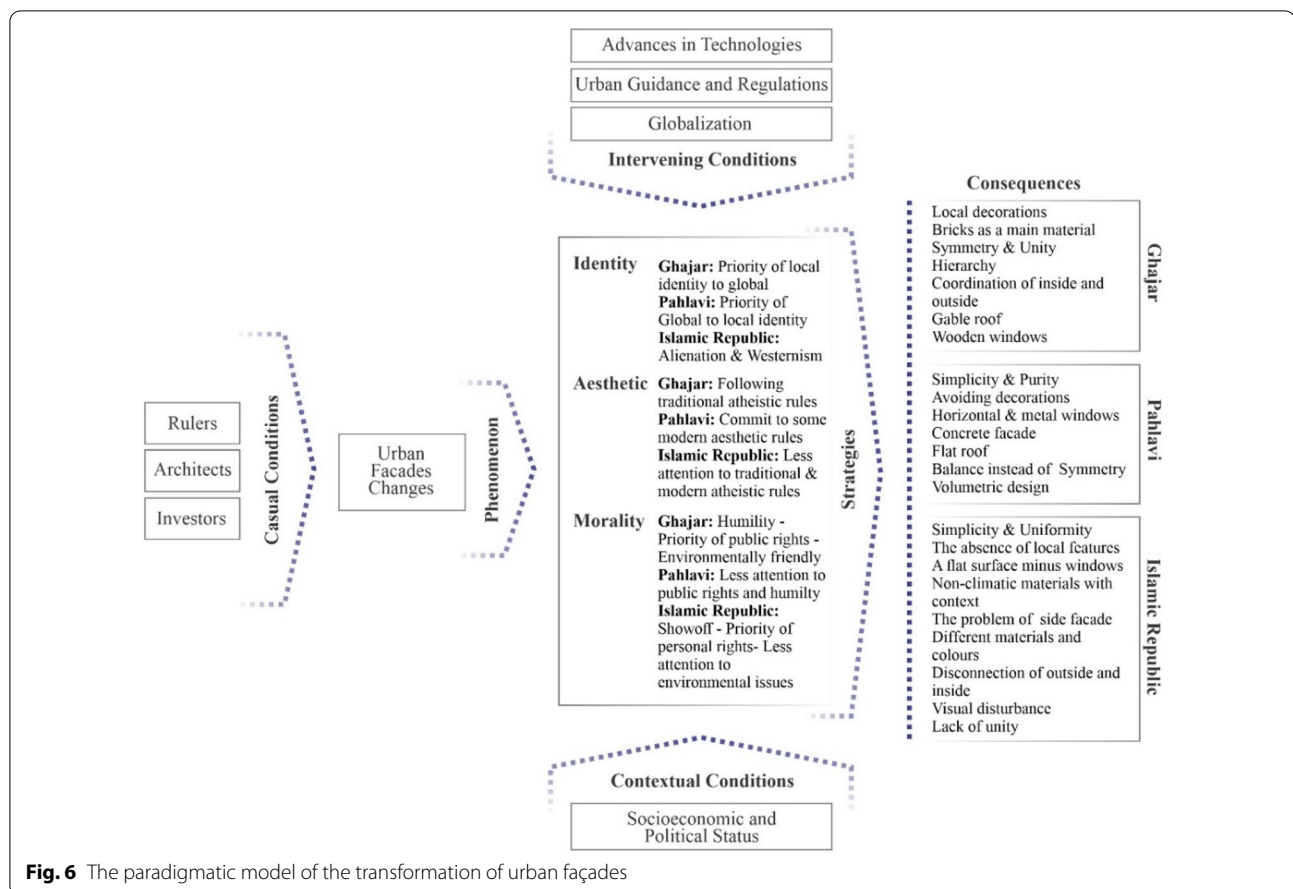
#### *Casual conditions (stakeholders)*

**Rulers/Governors:** The point of view of rulers towards urban issues in each period has affected the façades. By changing managers, architecture and urban development may also be changed depending on the new manager's approach, knowledge, concerns, and interest. In the Qajar period, Naser al-Din Shah's journeys to the West had some effects on the façades, but still local elements remained dominant. Later on under the Pahlavi dynasty, the state's tendency towards the West was also manifested in architecture to the extent that modernity came to dominate the tradition of local architecture. Under the Islamic Republic, there was a surge in managers with diverse ideas and isolated attitudes. Although the statesmen in this period did not believe in pluralism, in practice there has been a great variety of styles and trends in urban façades. As our participants commented: "Right after the Islamic Revolution, the city wasn't a concern for the main leaders. There was no law for regulating façades. People built their house and because they didn't have enough money, they simply neglected the façade. In fact, because of the war and other rudimentary needs and issues, architecture didn't have priority. After the war, the economy began to improve, which affected the urban façades".

During the 40 years after the Revolution, 14 mayors and 8 temporary supervisors have managed Tehran's municipality. Some of them were in charge for less than



**Fig. 5** The locations of selected façade buildings in Tehran



a year, and the longest tenure belongs to Mohammad Bagher Ghalibaf who was in office from 2005 to 2017. A glance at the different periods of urban management in Tehran shows that the most influential mayors have been Gholam Hossein Karbaschi, Mahmood Ahmadinejad, and Ghalibaf. When Karbaschi became the mayor of Tehran between 1988 and 1998 and with the beginning of the First Development Plan (1989–1993), economic policies tended towards the implementation of privatization. As one of the first institutions to follow this trend, Tehran municipality began to generate income by selling surplus building density, receiving building charges, and changing land use. Therefore, urban façades experienced great transformation in this period, with high-rise buildings being constructed in low-density fabrics and creating discontinuities in the city's skyline.

During Ahmadinejad's tenure as mayor, the Tower-Orchard Act was passed by the second City Council of Tehran in 2003 with the aim of protecting orchards in the urban area. According to this act, developers could construct a building on 30% of their orchard in keeping with high-rise development laws and leave the remaining 70% intact. In practice, however, the act became the antithesis

of itself and led to the destruction of many orchards in northern Tehran. Lack of harmony in building heights weakened the cohesion of urban façades and violated some of the basic rights of the neighbors of tower-orchards such as the right to access sunlight. As a result, the act was abolished after 14 years.

During the tenure of Ghalibaf, particularly between 2006 and 2014, the issue of façade attracted more serious attention because Tehran Beautification Organization recruited several well-known experts and initiated projects that would affect urban landscape. Also, the comprehensive plan of Tehran was developed in 2007 with more attention to issues such as identity, façade, and urban landscape. This period bore strong effects on façades and resulted in the establishment of the Façade Committee in Districts 1 and 22 of Tehran. Later on, an act of the Supreme Council of Urban Development required all cities to establish a façade committee. Nevertheless, this period still witnessed the policy of selling surplus building density in a more intense manner.

**Architects:** The interviewees also mentioned the role of architects in different periods. In the Qajar period, the artist was concerned with nostalgia and revival of the

traditional repertoire rather than individual inventions or flaunting. Therefore, the product of architecture and the designed façades manifested a high degree of cohesion and solidarity. In the Pahlavi period, however, the return of graduates from abroad and foundation of architecture schools according to Western educational system caused a widespread removal of vernacular elements from the façades. In the beginnings of the Islamic Republic, architecture and architects were actually neglected by officials. But after two decades and a large number of architecture graduates, often with little knowledge and strong greed for prestige and status, a tough competition began among the architects to make façades a means of flaunting. Many architects sought to boast about their novelty, thereby paying little attention to the context. In this regard, an academic member of staff has made the following remark: “When the building façades become monotonous and boring like an industrial factory, which is opposed to the varying-seeking trait of humans, and there is ignorance about the true reasons for creating diversity, then the solution is supposed to be achieved by unnecessarily sophisticated appearance of façades”.

**Investors:** According to our participants, houses were regarded as consumer goods in the Qajar and Pahlavi periods and even in the early Islamic Republic period. After the Iran–Iraq war, the change in economic situation and dependence on oil income led to a view of houses as capital goods. Investors injected their capital into the housing market and became able to make trends and shape the public taste depending on their understanding of façade architecture, thus making developers and architects following them. Therefore, characteristic of this period is the emergence of investors as an influential group in addition to urban managers and architects which play a role in the transformation of urban façades. A group of experts have emphasized the consequences of this problem: “For some of the nouveaux riches money is the only aim, and this will lead to abnormal behavior, bad taste, and impropriety the effects of which are manifested in thoughtless actions, ostentatious ornaments of homes, out-of-shape architecture, inappropriate parties and celebrations, and unsupported claims”.

### ***Intervening conditions***

**Technological advances:** In the Qajar period, due to the technological limitations of construction, less variety of materials, and widespread use of Cossack bricks, the façades enjoyed a desirable harmony. In the Pahlavi period, the façades were transformed as a result of importing new materials and novel construction techniques. The growing popularity of metal skeletons and the increasingly diminished role of walls as structures led to the use of glass and increasing transparency in

façades. In addition to bricks, concrete and stone materials came to be used in this period. In the Islamic Republic period, increased variety of materials (different types of stone, wood, glass, brick, aluminum, etc.), the society’s orientation towards fashion, and accepting every novelty transformed façades into a showcase for displaying new materials and the use of unrelated materials aggravated the chaotic state of urban façades.

**Globalization:** In the Qajar period, the statesmen’s travels abroad marked the beginnings of a new era in which cultural exchange would affect the domestic culture. This trend was intensified in the Pahlavi period. One of our interviewees remarked on this point as following: “Modernization which was the result of the formation of different renaissances in the Western social context (not overnight, but over a timespan of about half a millennium) found its way into Iran via the top-down approach of the state”. In fact, the architecture of that period was affected by modern Western architecture that did not conform to Iranian traditional architecture. In the beginnings of the Islamic Republic, these cultural influences decreased dramatically as a result of the dominant values of the time. Later on, however, the media revolution, the creation of the so-called ‘global village’, the advent of social media, and the superficial familiarity of some people with the Western culture reinforced the effect of globalization on the native culture. The scope of these effects incorporated the different dimensions of the Iranian society including architecture and urban façades. As some of our participants put it, a clear example of this superficial imitation is that some architects have widely copied prominent Western façades and promoted the so-called ‘Roman façade’ all over the country.

**Urban guidance and regulation:** As the interviewees emphasized: “in the Qajar period, architecture took place in the organic context of cities based on ancestral traditions as well as the knowledge and insight of the architect. With modernization in Iran, rules and regulations were considered as new factors affecting architecture and façades and for the first time the management of urban area took charge of construction”. To this end, the first laws about urban façades were enacted in 1939 (Protrusion on Pathways Act) and 1942 (Construction Regulation of Tehran). Under the Islamic Republic, especially in the last two decades, many laws and regulations regarding urban façades have been passed, some which have considerably affected the quality of building façades. In this regard, the interviewees mentioned the 40–60 rule as a key factor in the disorganized state of façades in this period. According to this rule, locating a mass on one side of the street and an empty space on the opposite side leads to visual imbalance in the eye of the audience. Also, a façade is divided into peripheral and main



surfaces. Only the main surface is worked on while the peripheral surfaces are left window-less and bleak and may remain so for years or even decades before another equally high building is constructed next to them. Thus, the incorrect definition of peripheral façades is likely to negatively affect the beauty of the city. In addition, the 2008 act of the Supreme Council of Urban Development stipulates that semi-open and pre-entrance spaces should not be counted as the floor area of the building. Owing to the high economic value of land and immovable property in Iran, therefore, the majority of people are not willing to allocate even 1 square meter of their house to semi-open spaces and common areas that are not included in the price, thereby diminishing the role of such spaces in contemporary façades.

#### ***Contextual conditions (economic, social, and political conditions)***

At a general glance, the socio-economic model of Iran is based on fulfilling the superficial indicators of development. Experts have commented in this regard: "This tendency began with the modernization in Naser al-Din Shah's period, albeit at a slow pace, and peaked in the Pahlavi period. After the Islamic Revolution and Iran–Iraq war, the superficial development policy was again pursued under the banner of reconstruction." For example, the Pahlavi dynasty promoted imitation of Western world-view in the fabric of the city, which led to the dominance of modern architecture principles in urban façades. The city came to symbolize rupture with traditions as well as progress and development.

Moreover, the participants mentioned historical-social events as another force which has affected the transformation of urban façades. For instance, in the beginning years of the Islamic Republic period, people's income was affected by the Revolution, Iran–Iraq war, reduction in national revenues, and increased population, which influenced the quality of architecture and urban façades. More specifically, ordinary types of housing became more distant from the reach of low-income groups. In addition, the issue of the urbanization of capital in Tehran and its effect on urban façades were mentioned by the interviewees. It means that capital is transferred to real estate market and stops production industries and constantly generates economic rent via the large benefits inherent in this market (Harvey 1987; Christophers 2011). In other words, the construction industry has turned into one of the most efficient, productive industries under the Islamic Republic of Iran. According to the experts, the low quality of buildings and perpetual destruction and reconstruction is in favor of this capital flow and contributes to the production of this cycle. Therefore, it is the

power of investors and developers in this process that shapes the city and its façades.

#### ***Strategies***

**Identity:** As experts maintain, in the Qajar period we can observe the impacts of the Safavid architecture on urban façades which was in turn the heritage of thousands of years of traditional Iranian architecture. In other words, local identity was superior to global identity. In the Pahlavi period, however, the history of the land which was the context of the mentioned experience was put aside and vernacular details were removed from the façades. In this period, although no specific path had been depicted for planning social identity in line with the long history of the country, there was still a way ahead and the society was not facing a dilemma of identity. Under the Islamic Republic, the dilemma of tradition and modernity in the society took a new form. "In previous epochs, one of these two poles won over the other: tradition in the Qajar period, and modernity in the Pahlavi period. But in our time, there is a serious conflict between the two. Now, a double illusion is expressed as two negative concepts, i.e. Westernization and self-alienation. Thus, both towards the Western thought and towards the manifestation of our vernacular memories, we are facing a deadlock" (Shāyghān 1989). In fact, in this period, there is no clear understanding of identity among state officials, managers, and common people, and this ignorance, which is due to human errors rather than historical determinism, can be obviously seen in today's architecture. In this state of confusion, there are diverse groups who defend the Islamic aspect, the national aspect, modernity, or traditions. Experts believe that the chaotic situation in the urban façades of Iranian cities is the result of the cultural and identity chaos in contemporary Iranian society. As we move from the past to the present in this century, the identity crisis becomes more serious, resulting in wide gaps between generations/decades to which the educational system has not been able to propose any solution based on our culture and identity. This is why a disorganized plurality has been around in urban façades which is exacerbating over time.

**Aesthetics:** In this regard, the experts have argued that the architects unanimously followed specific aesthetic principles which had arisen out of their live experience, thereby resulting in harmony and cohesion in urban façades. In the Pahlavi period, other readings of aesthetic principles were offered and, due to the dominance of modern architecture principles, artistic details were largely eliminated from façades. In the early years of the Islamic Republic period, priority of other issues such as economic problems marginalized the role of aesthetics in façades, but it gradually received more attention with



changes in the conditions of the society. However, no specific aesthetic criteria were still followed. In the recent decade, poor imitations of Roman buildings have become prevalent in urban façades, some even in an exaggerated manner due to the economic status of the owner.

**Morality:** As with morality, the participants mentioned public rights and respect for the environment. They stated that in the Qajar period façades were to some extent regarded as a public right. It means that building façades were not used as a means of flaunting and had essentially humble appearances. In the late Pahlavi period and the Islamic Republic, however, individual rights were prioritized over public rights. Aristocracy, consumerism, cultural alienation, individualism, and flaunting habits became prevalent and gradually formed part of the behavior of contemporary Iranians. The manifestation of this in architecture was the fact that façade became a means of expressing one's social prestige. For instance, some people spend large amounts of money to compete for making their façade and entrance doors more ostentatious. In addition, in contrast to the respect for the environment in the Qajar period which was manifested in the use of regional materials in façades, the focus on environment has diminished in the Islamic Republic through the use of materials such as stone, Alucobonc, etc.

### Consequences

According to the interviewees, Qajar façades were based on a part-to-whole hierarchical structure. The façade surface was usually divided into three or five parts (an odd number) and the central part was emphasized through a protrusion. Thus, the façades showed a kind of unity. All sides of the building façade were constructed. Ornaments were an inherent part of the building, and characteristic of the façade of this period was the details of tiles with brickwork on the roof line. Pointed arch was used as an

element of identity with a structural function. The openings were made of wood with three or five sashes and neatly juxtaposed beside the bricks. The window space was defined on the façade surface with delicate depressions. At that time, elements like pavilion (which was manifested in façades in form of gable roof) were adapted from the Western architecture and promoted in Tehran as the capital of the country. Another such adaptation was streets which caused the openings to be transferred from the inner courtyard to the exterior façades (in contrast to previous periods), thereby connecting the public spaces to the interior of buildings. However, there was an overall harmony in façades and native materials and ornaments as well as traditional principles were still utilized (Fig. 7).

In the Pahlavi period, widespread standardization and mass development led to a decline in plurality in architecture and the international style which was not context-specific came to flourish. In this period, the emphasis was on the purity and simplicity of form. Symmetry gave way to balance in the design principles. Ornaments were minimized and native elements were eliminated. The windows were changed to horizontal direction and the horizontal dimension of the building came to be emphasized. As flat roofs became common, the skylines turned from the gable shapes of the Qajar period to horizontal lines. One of the most important changes in façades at the beginning of this period was the combination of mass and space of the building. With volume-based design, both filled and hollow spaces could be formed within the building and semi-open spaces turned into an influential element in the composition of the building and its façade. However, this approach diminished in the second part of the Pahlavi period (Fig. 8).

The participants classified the visible features of urban façades in the Islamic Republic period into several



**Fig. 7** Urban facades of Qajar period in Tehran; **a** Sarhang Sakhaie St; **b** Shariati St



**Fig. 8** Urban facades of Pahlavi period in Tehran; **a** Felestin S St; **b** Bozorgmehr St; **c** Golnar St; **d** Mousivand St, Shariati St; **e** Simi St

categories. According to their opinions, in the early years after the Islamic Revolution the façades were very simple and the dominant material was stone. The façade was free from any ornaments and the openings resembled holes on it. The façade was rough and without any details. The principles of symmetry, balance, and unity were ignored. As we move away from the Revolution towards the present, the façades become more disorganized and new materials (e.g. granite and 3-cm bricks) constantly become fashionable. Later on, Alucobond cladding came into vogue. In another timespan, glass façade which was a complete imitation of Western journalistic architecture became prevalent and, finally, the façades came to be cluttered with various, and sometimes incompatible, items such as stone, glass, wood, and different colors. Afterwards, as a result of the popularity of Roman façades in northern Tehran, the use of stone in façades became prevalent in the façades turned from empty panels without ornaments to ostentatious prestigious works of architecture. Decorative Roman arches and detailed work on stone has become a means of flaunting

in this period. The façades are once again becoming symmetrical. Overall, the disorganized state in urban façades is exacerbating and harmony and cohesion are fading in urban walls (Fig. 9).

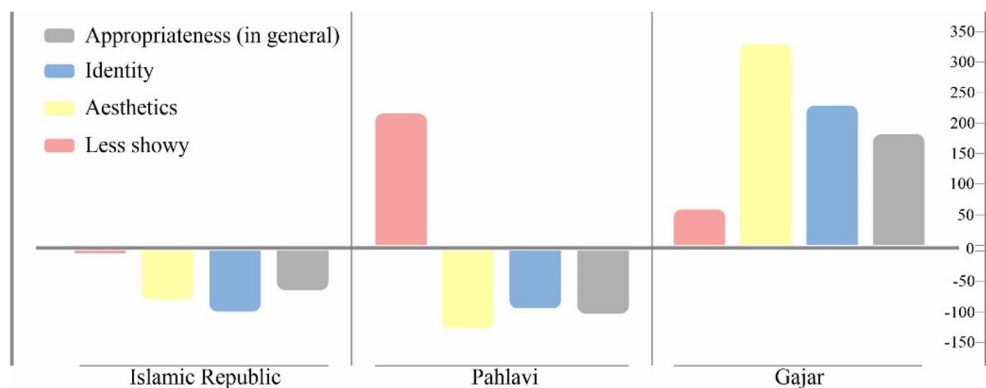
#### People's perception of urban facades of the three periods

After extracting the factors affecting the transformation of urban façades in Tehran over the recent century, we evaluated the styles of façades in the three time periods from the point of view of lay people in terms of identity, aesthetics, and showy. The findings are indicative of relative superiority of Qajar façade over the other two periods and the equality of the façades in the Pahlavi period and the Islamic Republic. According to the respondents, urban façades in the Qajar period had a more authentic identity and greater visual beauty and were more appropriate for the city of Tehran. Also, the least amount of flaunting as well as the least visual beauty belonged to the façades of the Pahlavi buildings. From the point of view of the respondents, the urban façades under the Islamic





**Fig. 9** Urban facades of Islamic Republic period in Tehran; **a** Jafarzadeh, Shariati St; **b** Shariati St; **c** Golnabi St; **d** Jafarzadeh, Shariati St; **e** Shabdiz St; **f** Arous Alley, Elahie; **g** Shahid Gomnam St; **h** Elahie



**Fig. 10** Comparison of façades in different periods from people's point of view

Republic are suffering from the highest level of flaunting and identity crisis (Fig. 10).

Analysis of the images indicated that the most appropriate façades were on image 4, 7, 11, and 15 which had used bricks and had been built according to the principles of symmetry, balance, and proportionality. The respondents believed that these façades were the most

beautiful and authentic ones. Importantly, brick seems to be the most authentic element of identity in urban façades because only these four buildings among the 15 selected buildings had used bricks in their architecture.

On the other hand, simple façades (only a panel with windows on it) which were built by stone, composite cladding, and concrete and were in vogue in the



Pahlavi period and the early years of the Islamic Republic provoked the least visual beauty and sense of identity (images 3, 9, 10, and 14). The most inappropriate façades were specified to be 5, 10, and 14, two of which belonged to the Pahlavi period with the principles of modern architecture and horizontal windows as well as the dominance of concrete in their materials. This is indicative of the difference between the attitudes of experts and common people; that is, modern architecture is invaluable for architects but it is not appealing to the public. In spite of the tendency of some architects towards formalist and graphical façades that have recently come into vogue in the Islamic Republic period (images 1 and 12), people maintain that these façades, after the Roman façade, have the highest level of flaunting (Fig. 11).

## Conclusion

### Concluding remarks

Our findings confirm that many factors and actors have been at hand in the process of producing urban façades in Tehran over the recent century. The role of each of them has been different between, and even within, the three periods under study. According to our findings concerning the casual conditions, although the role of Qajar architects was prominent due to respecting the nostalgic traditions in designing urban façades, the most important role in the formation of façades in the Pahlavi and Islamic Republic periods belonged to investors and urban managers. As with the contextual conditions, the façade should be viewed through an economic-political lens from the Pahlavi period onwards, especially in the Islamic Republic of Iran. In these periods, by bringing capital to the field of housing and immovable property and changing it to capital goods, the façades became more ostentatious until the exterior gained superiority over the interior of the building. In addition, urban regulations and technological advancement which did not contribute to Qajar architecture gained importance under the Pahlavi dynasty and the Islamic Republic.

### Key takeaway points for urban policymakers

Wrong decisions made by some policymakers and city managers lead to further disorder of the city's landscape. Rapid change of managers, separation of façade committee and architecture committee in the municipalities, lack of upstream documents and functional guidelines, and almost one building typology for the whole city are among the wrong actions in the field of urban management and urban laws. Given the different approaches of managers, it is necessary to create a mechanism so that with the change of managers, the building design policies and standards do not change. In this regard, measures such as preparing practical









guidelines with an emphasis on indigenous identity and contextualism on different scales by the cooperation of urban design and architecture experts, integrating façade and architecture committees in municipalities, and defining a clear and logical mechanism in control and monitoring urban landscapes, and highlighting the role of urban designers in the process of decision making and in designing of building envelopes can help improve the process of producing urban façades.

Other challenges in the process of designing urban façades in Tehran include the lack of proper distribution of work to experienced and competent designers, sometimes unhealthy competition for employment, the low wages of qualified designers, and poor quality of design. For this purpose, ranking façade designers and architects, creating proper mechanism design in order to encourage employers and investors to entrust the work to qualified designers, the necessary training of architects in the university, and strengthening trade unions can be helpful.

The passivity of people to urban façades, as well as the conflict of preferences of some buyers with experts about local identity, is among the other challenges in the process of designing façades. Raising public awareness is one of the most important measures to address this issue. Until the general preferences of the people in the field of urban façades do not change, we cannot hope to improve the quality of the urban landscape. For this purpose, all urban institutions, from the city councils to the media to NGOs, should all strive to present buildings with local identity to the people. This requires continuous and long-term planning.

### Key takeaway points for designers

Some architects try to create a different and unique building façade. Although this approach is linked to the culture of the community and goes beyond just architects, the schools of architecture encourage it. If we are looking for a harmonious and healthy city, this view should be changed and architects should not seek to show off in all their works. The design of the façade must be in accordance with the function of the building. Certainly, public buildings can be designed as landmarks, but residential buildings should not be remarkable in the city context. To address this problem, in addition to the necessary training, it is better for the creativity of the architects to be directed towards the techniques of coordination with the neighboring buildings and the surrounding context. For this purpose, it is better to consider special façade design studios and courses related to the basics of the identity of Iranian cities in university curricula.

Total score	2	1	0	-1	-2	Criteria	Pictures	NO.	Periods
182	97	82	74	42	26	Appropriateness		4	Qajar
229	108	91	66	32	23	Identity			
328	137	100	51	20	13	Aesthetics			
-60	50	51	82	63	74	Showy			
-302	16	42	40	70	153	Appropriateness		5	Pahlavi
-230	27	45	52	65	132	Identity			
-300	24	36	39	60	162	Aesthetics			
-317	14	29	60	60	157	Showy			
141	78	102	61	43	37	Appropriateness		7	
95	55	102	83	45	36	Identity			
187	89	103	61	42	26	Aesthetics			
-42	33	71	87	77	51	Showy			
-414	5	10	46	76	179	Appropriateness		14	
-366	5	22	50	80	159	Identity			
-484	1	12	23	62	218	Aesthetics			
-460	3	12	27	66	206	Showy			
157	63	108	84	45	16	Appropriateness		15	
156	64	98	99	40	15	Identity			
151	61	99	101	40	15	Aesthetics			
-83	23	59	101	78	55	Showy			
-88	16	69	91	91	49	Appropriateness		13	
-111	11	64	98	91	53	Identity			
-160	12	49	93	93	70	Aesthetics			
-171	13	37	103	94	70	Showy			
-305	12	22	59	99	126	Appropriateness		10	Islamic Republic
-282	10	24	76	90	118	Identity			
-406	7	12	41	84	174	Aesthetics			
-386	7	21	42	75	173	Showy			
-162	15	59	84	69	91	Appropriateness		9	
-183	16	50	84	71	97	Identity			
-237	14	35	81	76	112	Aesthetics			
-140	21	51	89	83	75	Showy			

**Fig. 11** People's perception to selected façades from different periods

### Limitations

This study has some limitations, which provide some directions for future research. First, in the present study, facade types were limited to residential buildings. In

order to evaluate the facade from the people's point of view, in future research, it is suggested to complete the classification of buildings in each period by land use, building type, as well as the classification of streets.

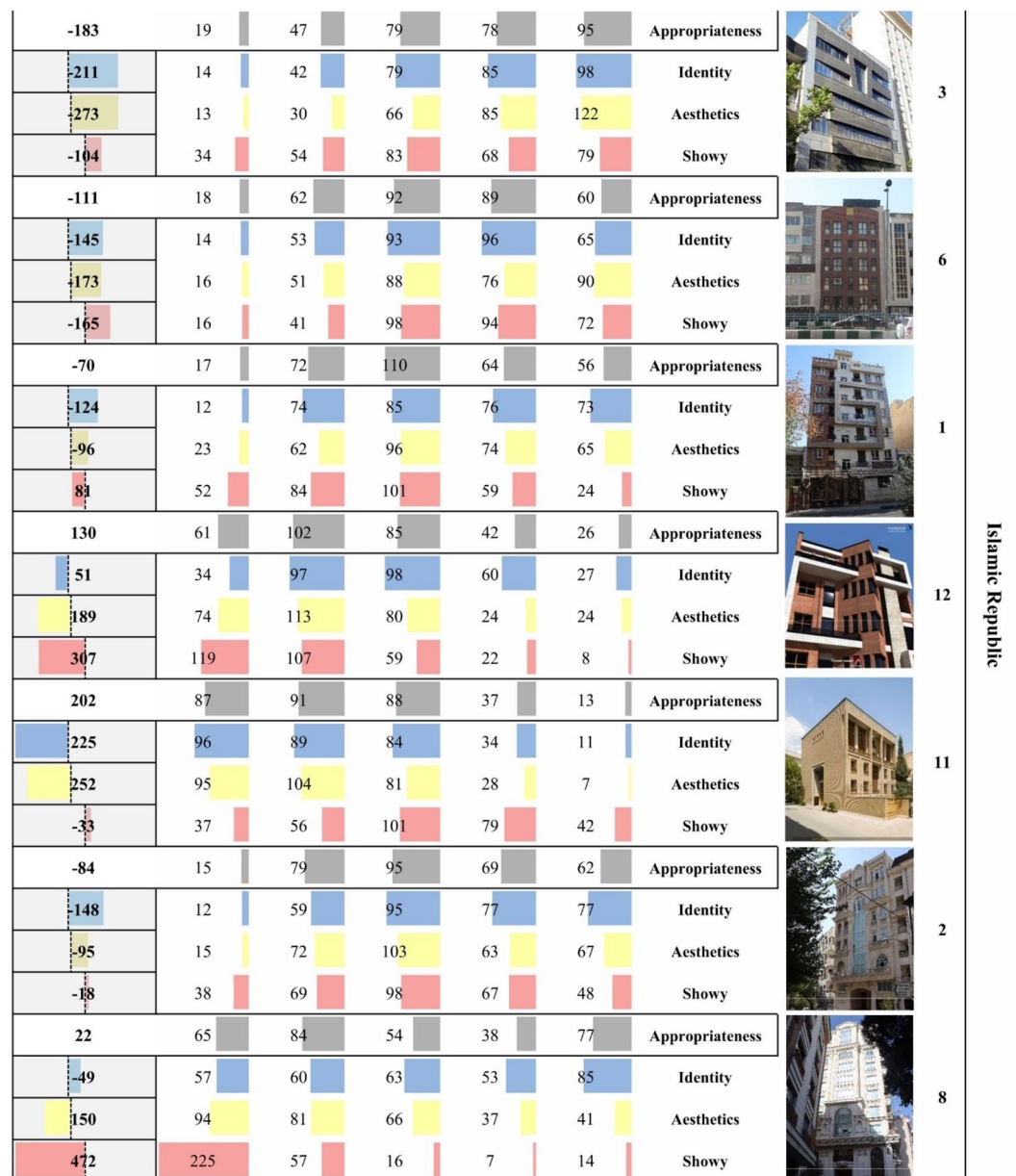


Fig. 11 continued

Second, the survey sampling is restricted to university students. In future research, it is better to evaluate the building facades in each neighborhood separately by its residents, in this case, it is possible to develop operational solutions to better organize them in each neighborhood. Third, to increase the accuracy of the results, the use of intelligent tools such as electroencephalography and the like to record brain signals while walking in space and observing the facades to analyze the brain's responses to sensory stimuli by citizens is suggested. Fourth, in addition to measuring the components of beauty, identity and

showy, it is recommended to measure the impact of different types of building facades on the mental health of citizens.

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#### Author contributions

Both authors read and approved the final manuscript.

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**Availability of data and materials**

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**Declarations****Competing interests**

The author declare that they have no competing interests.

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