

# Analysis of the Effects of Traditional and Western Architecture Development on Architectural Decorations of Qajar Houses; Case Study: Kermanshah City in the West District of Iran \*

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## ABSTRACT

Developments in the decoration art of Qajar architecture in Iran were influenced by modernism and architectural development approaches after the kings of this period enhanced their communications with the Western world. These changes in decorations or ornaments of the Qajar houses in Kermanshah appeared in a wide area of historical fabric. This paper asks how these decorations are used especially in the Qajar houses of Kermanshah City, Iran, and how much architectural development patterns influence the ornaments of these houses. The mentioned questions have not been evaluated in previous studies. Research method of this study is historical-interpretive that is done through following steps: "examining the patterns of decorations and determining the components influenced by traditional and western architectures in the houses," "comparative analysis of the method and extent of the influence of traditional and western architecture on decorations of Qajar houses in Kermanshah," and "explaining and evaluating how and how much the decoration patterns are influenced by the traditional and western architecture in Qajar houses in Kermanshah." Thematic analysis of this study was done through comparative identification, organization, and evaluation. Analysis and summarization of results obtained from the process of evaluating the main indicators influenced by traditional and Western architecture in this study show that developments and influence on the decorations of Qajar houses in Kermanshah have been manifested as practical developments during three periods of architecture, including traditional, western, and mixed patterns. These developments have been influenced by ancestors and kept the identity under the influence of decoration components of Iran's traditional architecture in the first period, while these developments have appeared with the beginning of influences of Western architecture in Iran influenced by components of Western architecture ornaments during the second period. In the third period, these developments appeared as mixed ornaments under the influence of ancestors and Western architecture.

**Keywords:** Decorations, Architecture, Qajar Houses, Kermanshah.

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## 1. INTRODUCTION

Developments of decorations in the Qajar houses of Kermanshah affected a wide area of the historical fabric of this city, which was the political capital of Qajar prince governance. The available studies have been realized based on the topic importance, analysis, and identification of decorations patterns in Qajar houses, the influence of traditional techniques and Western architecture development, revitalization of old thoughts and architecture to enrich the Iranian culture with the worldview of Qajar decorations' style and preservation of this cultural heritage that reminded memories of ancestors in architecture of Qajar houses in Kermanshah. However, the decorations of these houses have not been evaluated in terms of the influence of traditional architectural components, Western architecture, and decoration patterns of them. This study conducts a comparative analysis of the Qajar decorations' development in the first step and then studies their manifestations as a precious cultural heritage in the houses. According to the research background and topic analysis in hypotheses, it seems that the influence of the Western architecture development approach led to the advent of Qajar decorations' patterns so that these decorations

are influenced by the ornaments designed during the same period. This research uses a comparative approach to analyze the effects of traditional and Western architectural development on the decorations of houses to answer two questions:

1. What have been the architectural decorations of Qajar houses in Kermanshah? 2. What has been the extent of influence of architecture development models in architectural decorations of Qajar houses in Kermanshah?

### 1.1. Background

The research background shows that various studies have been done on the decorations during different historical periods most of which, have focused on the typology and description of apparent and decorative features of architectural works. According to the examination of houses in Kermanshah, it seems that some studied documents have addressed the decorations in artworks that are not architectural, so there is no systematic and independent study on this subject analyzing the decorations in Kermanshah houses and the influence of traditional and western architectural components on these houses. Some relevant studies have been mentioned herein.

**Table 1. Background of Relevant Studies**

Subject	Author	Documents	Title	Discussions	Year
Kermanshah	Karimi	Book	Detailed Geography of Kermanshah	Natural, geographical, and historical features	(Karimi 1938)
Kermanshah	Bayat	Book	Brief Geography of Kermanshah	Detailed historical geography of western Iran	(Bayat 1978)
Kermanshah	Afshar Sistani	Book	Kermanshahan and Its Ancient Civilization	natural, geographical, historical, Social and economic conditions	(Afshar Sistani 1992)
House	Memarian	Book	Introduction to Iranian Residential Architecture	Introverted and extroverted typology, assessment of architectural elements, structural patterns, and decorations	(Memarian 1993)
Architecture	Bigleri	Book	The History of Kermanshah in the Qajar Era	an approach to the social, political, and economic history	(Bigleri 1997)
Architecture	Afshar Asl and Khosravi	Book	Iran's Architecture in the Qajar Period	Examining the architectural features of Qajar	(Afshar Asl and Khosravi 1998)
Kermanshah	Soltani	Book	Historical Geography and Detailed History of Kermanshah	Historical geography, economy, knowledge, art and culture	(Soltani 2002)

Subject	Author	Documents	Title	Discussions	Year
Kermanshah	Moradi	Book	The Cultural Heritage of Kermanshah	Historical, economic and cultural, social and geography	(Moradi 2003)
Architecture	Qobadian	Paper	Dar al-Khilafeh Naseri	Tradition and modernity in Tehran's contemporary architecture	(Qobadian 2004)
House	Kateb	Book	Architecture of Iranian Houses	Architectural features of traditional houses, and decorations in Tehran	(Kateb 2012)
Architecture Identity	Ghasemi Sichani and Memarian	Paper	Typology of Qajar Period House in Isfahan	Formal, climatic, and cultural patterns of houses in Isfahan	(Ghasemi Sichani, and Memarian 2010)
House	Haeri Mazandarani	Book	House, Culture, Nature	Houses in Kashan, Hamedan, Kerman, Rasht, and Shiraz	(Haeri Mazandarani 2009)
Architecture	Kamali	Paper	Survey of the Architecture of the Qajar Period	Qajar architecture, changing structural pattern from introverted to extroverted type	(Kamali 2010)
Decorations	Gudarzi	Book	Aine Khial	Qajar architecture, architectural decorations of the Qajar period in Tehran	(Gudarzi 2009)
Typology	Khakpour, Ansari, and Tahernian	Paper	Typology of Houses in Rasht's Fabric	Typology of houses in Rasht and separating architectural patterns	(Khakpour, Ansari, and Tahernian 2010)
Tradition and Modernity	Ramezan-Jamaat and Neyestani	Paper	The Manifestations of Modernity and Tradition in the Entrance Spaces of Houses in Tehran in the Qajar Era	Architectural features of Qajar houses in Tehran	(RamezanJamaat, and Neyestani 2012)
Architecture	Riyazi	Book	The Effect of Modernity on the Spatial Organization of the City of Tehran	Investigating development in the spatial structure of Tehran	(Riyazi 2010)
Architecture	Farhad and Kashani	Paper	Survey of Architecture and Urban Planning in the Qajar Period	Introducing determinants in Qajar architecture	(Farhad and Kashani 2009)
House	Saremi Naeini and Masoudi	Paper	Studying and Investigating the Historical Houses of Birjand	Climatic conditions, and extroversion in the architecture of Qajar houses	(Saremi Naeini and Masoudi 2010)
House	Zarei	Paper	Investigating the Stylistic Characteristics of the Residential Architecture of the Qajar Period in Shiraz	Expressing architectural specifications, structure, and decorations, and examining the effects of Western architecture	(Zarei 2010)

Subject	Author	Documents	Title	Discussions	Year
Decorations	Babazade Oskouei and Pakravan	Paper	The Prominent Patterns in the Design of the Main Facades of the Houses of the Qajar Period	Architectural assessment in terms of structure, aesthetics, and influences of the West in the architecture of houses	(Babazade Oskouei and Pakravan 2011)
House	Qelichkhani	Paper	An Analytical Approach to the Evolution of the Iranian House during the Qajar Era	Architectural evolutions in extroversion orientation and communication with the environment, lifestyle, and social space	(Qelichkhani 2011)
Architecture and Culture	Armaghan, Sultanzadeh, and Irani Behbahani	Paper	Architecture and Culture in Noble Houses of Tehran during the Qajar Period	Examining the lifestyle, architecture, and decorations of Qajar and the influence of Western style	(Armaghan, Sultanzadeh, and Irani Behbahani 2013)
Architecture	Shahroudi	Paper	The Impact of Cultural Interactions between Iran and Europe on Iranian Architecture In the Qajar Period	Evolutions caused by new needs and advent of the technology under the influence of Western patterns and lack of use of traditional patterns	(Shahroudi 2014)
Architecture and Culture	Ebrahimi, Sultanzadeh, and Keramati	Paper	The Reflection of Western culture in The Evolution of Lifestyle and Architecture of Late Qajar Houses in Hamedan	Influence of behavioral patterns of individuals in society on the formation of residence space, the effectiveness rate of Western culture in the lifestyle of people in Hamedan, and architecture of spaces	(Ebrahimi, Sultanzadeh, and Keramati 2017)
House	Roshandel, Hashemi Zarjabad, and Ghorbani	Paper	Architectural Investigation of Traditional Qajar Houses	Introducing the architecture of the Qajar house, decorations of brickwork, tilework, seven-color, and mosaic work, and plasterworks on capitals, ponds, and sash windows	(Roshandel, Hashemi Zarjabad, and Ghorbani 2015)
House	Dabdabeh and Farhinia	Paper	Investigating the Effect of the Change of Use on the The Interior Architecture of Behnam's Historic House	Flexibility with reuse, meeting new needs, integrity and continuity of spaces and various ornaments in interior space	(Dabdabeh and Farhinia 2018)

## 2. METHOD

Regarding the objectives and foundations of this study, the historical-interpretive research method has been chosen to address the events that occurred in the past and find the influence of the history of papers' analysis (Qayumi Bidhendi 2004). Thematic analysis in this study is done through identification,

organization, and evaluation of the path, and the indices have been determined through comparative analysis; the implementation process is done as shown in the figure:

1. "Investigating the decorations patterns and determining the influential component of traditional and western architecture in houses:" a proper

interpretation of the problem regarding the derived influence is presented; realities related to the subject are extracted and patterns of the decorations and components of the influenced by traditional and western architecture are examined as the criteria for evaluating the considered houses.

2. "Selecting and analyzing decorations indices of houses" that include A) selection of houses, B) analysis of indices. According to the review of theoretical foundations, case studies are selected if they reveal the process of being influenced by traditional and Western architecture in terms of construction history. The historical background of studies indicates that the Qajar houses of Kermanshah are precious cultural heritages located in the historical fabric that are registered in national works of Iran, so they are considered properties. Analysis of the

influence on the considered indicators that include "structure, elements, and use in decorations" is done based on the components of traditional architecture and the influence of Western architecture then the status of houses' decorations is evaluated; finally, the quantitative values (% unit) are presented based on the influence rate.

3. "Conclusions:" The results of the study provide a "comparative analysis of the influence rate of traditional and western architectures on determined components," "comparative analysis of the method and extent of influence of traditional and western architectures in houses' decorations," and finally "determination and evaluation of the process and extent architectural decorations influenced by traditional and western architectures in houses."

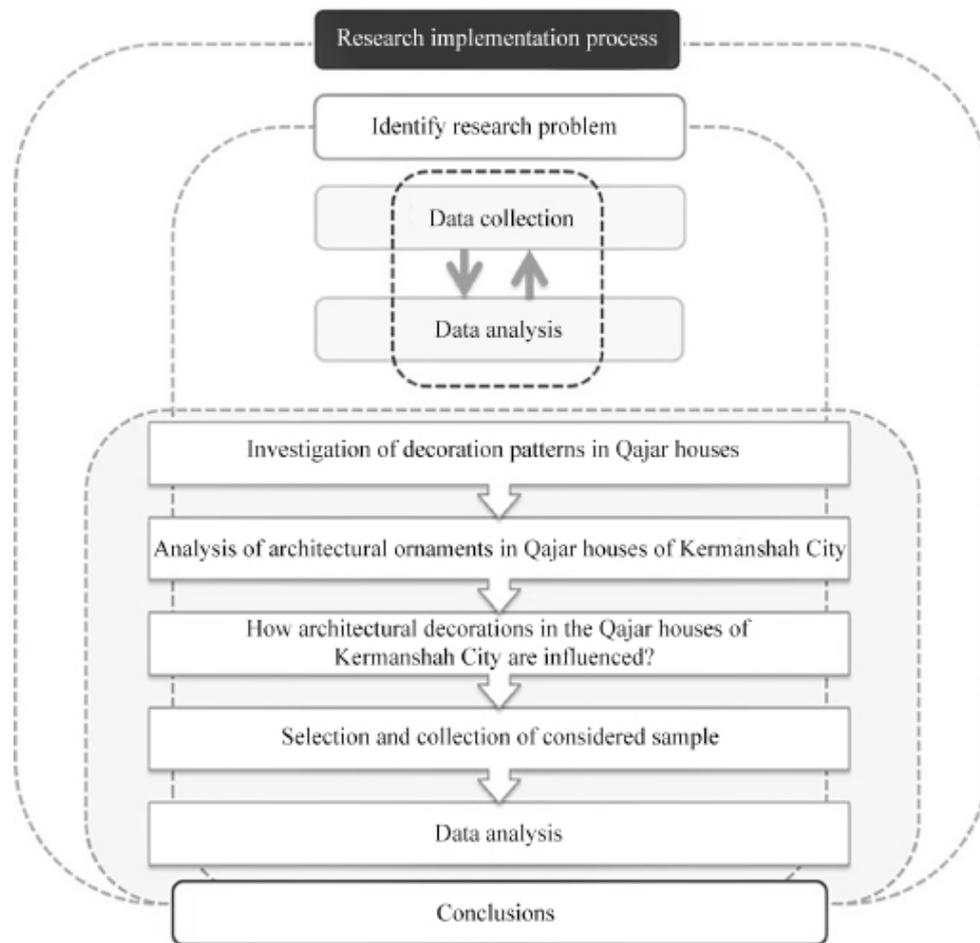


Fig. 1. Implementation Process

### 3. THEORETICAL FOUNDATIONS

Architectural decorations of Iran express the thoughts, creativity, aesthetics, and art of architects, which were developed in each historical period regarding the available needs and facilities. These decorations showed different parts of architectural elements from

partial to whole and were implemented in the building based on various techniques (Makinejad 2017, 95). Decorations introduced architectural identity by expressing geographical, economic, social, and religious features. The distinctive decoration styles in different eras were significant regarding the geographical, economic, social, and religious

features, and Iranian architects created glorious monuments using many elements, such as wooden ceilings decorated with motifs, beautiful capitals, and columns made of wood. Using bold designs in the ceiling, marquetry, knot arrangements (Gereh Chini), Cantilever design (Toreh Sazi), and perforation (Kateb 2012, 341). Qajar architecture was shaped under the influence of big changes in conceptual and physical contexts and integrated with Iranian patterns with the influence of Western architecture of European architecture models (Tahmasbifard 2020). Theorists believe that this is a semi-modern period that differs from the principles of traditional architecture of Iran and appeared as a transition period due to evolution in various indices and factors (Haj Mohamadi et al. 2021). In the Qajar era, structural patterns of spaces were based on traditional architecture; the design was shaped as a traditional combination influenced by Western architecture, and Western elements, details, forms, shapes, and decorations in buildings were modeled (Bani Masoud 2012, 700). Decorations of this era were distinguished due to their initiative aspect under the influence of Western culture, so the different implementation of decorations was the outstanding feature of this era (Afzal Tousi, Selahi, and Selahi 2012). Decorations of the Qajar era are influenced by the use of Western decorations, color

diversity, luxury-oriented, use of natural elements in motifs, and implementation design in non-geometric technique (Kianmehr, Taqvi Nejad, and Mirsalehian 2015).

The major decorations comprised tilework, stonework, painting, and mirror decoration which were influenced by the West in terms of color and diversity (Makinejad 2017, 48). In this era, decorations were influenced by Western architecture in noble palaces and monuments; plasterwork, stone carving, and tilework were influenced by the decorative Western motifs and elements. Aesthetical concepts appeared in Qajar buildings by using successive curve lines in the façade, repetition, and rhythm in the vault and arch, coordination between decorations and colors diversity, similarity between capitals, unity of elements, symmetric columns and capitals in the façade; the overall understanding of decorations was realized based on the relevant and continuity of these elements (Amini, Motalebi, and Dabagchi 2020). Decoration motifs influenced by the West included abstract shapes, arabesque, Khatai, Western flowers, landscapes, hunting grounds, flowers and birds, shahs' images, lion and sun, and angels (Momeni, Attarian, and Ghadrnan Gharamaleki 2015). Decorations features in Qajar architecture have been expressed based on the research background:

**Table 2. Architecture Decorations' Features**

Plasterwork	Traditional plasterworks: using Iranian motifs and elements; mixed plasterworks: a combination of Iranian and Western motifs.
Stone Carving	Imitating traditional Iranian architecture; being influenced by Western architecture; and integrating art of Iranian and Western architecture.
Inscription	Qajar inscription with seven-color tiles was done based on the ancient projection performance.
Tilework	Traditional implementation; using themes similar to Western samples; using mixed tilework; using plant, nature, and human motifs; being influenced by hot colors and promoting seven-color tiles.
Painting	The kingdom of Fath Ali Shah and Mohammad Shah: using ideological attitude in the painting of residential buildings and palaces; face painting (portrait) of the King; using oil color; using summarization; introduction of religious works and animal motifs; observing the principles of Persian painting. Reign era of Naser al-Din Shah: evolutions in Persian painting and influence of modernity on the traditional method of Iranian art, being influenced by Western painting.

### 3.1. Qajar City of Kermanshah

Kermanshah known as the capital of the reign of Mohammad Ali Mirza DolatShah was a large area of western Iran. According to documents and descriptions presented by historians, traders, passengers, and city map, changes in Kermanshah's development occurred

regarding the political, economic, social, and cultural situations within an organized system, which caused appearance of governance palace, Mashgh Square, Naghare Khaneh, Masjed Jame, Bazar, Toopkhaneh Square, and Divan Khaneh in Kermanshah (Broumand Sorkhabi 2009, 170).

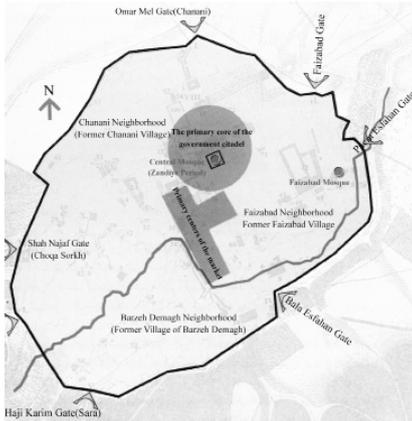


Fig. 2. Map of Kermanshah during the Qajar Era

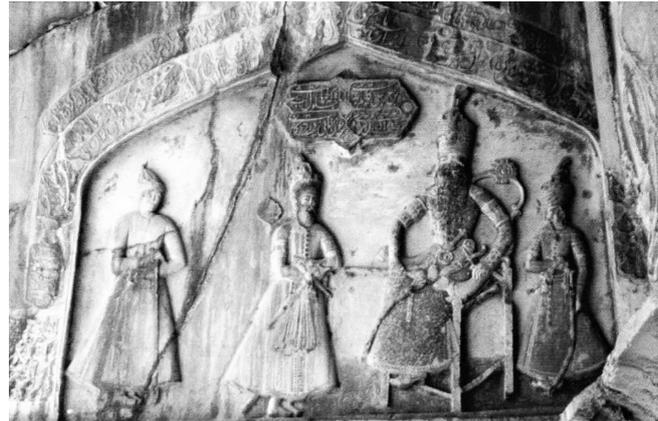


Fig. 3. The Motif of Fath Ali Shah and Mohammad Ali Mirza Dolatshah carved on the Stone of Bostan Taq

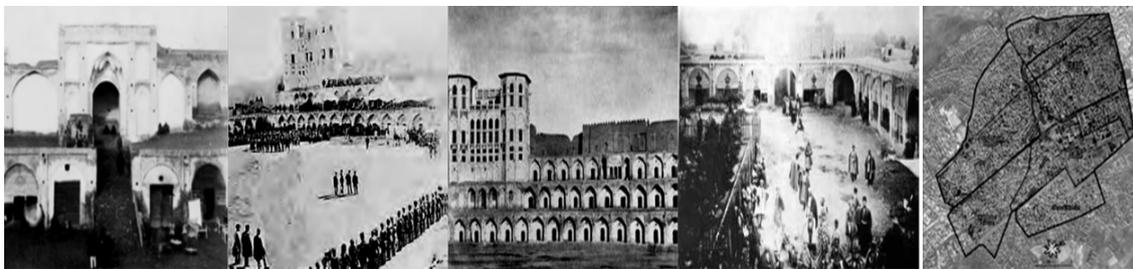


Fig. 4. Qajar City Center of Kermanshah (Toopkhaneh Square, Mashgh Square, and Divankhaneh Mansion)

Historical features and natural structure of Kermanshah played a vital role in the appearance of the skeletonization of the early core of the city, the growth of spaces, intercity access networks, and elements of the physical index, the Russia and UK Consulates were established in this city due to communication route and political importance of Kermanshah. As a commercial, political, communicational, and military center, Kermanshah was important and this position led to city survival and creation of multiple urban structures.

### 3.2. Specifications of Decorations in Kermanshah Houses

The entrance of Western architecture models into

the residential architecture of Kermanshah caused changes in the use of materials and decorations, which are expressed herein:

**Evolutions in the use of materials:** Structure: In the beginning period of this era, structure materials were bricks and wood, and the load-bearing wooden wall is seen in the columns and ceilings of the buildings. After the introduction of Western patterns, the use of stone and steel plate became common in the ceiling coverage. Façade: The façade's materials included carved and sealed bricks used in widow and roof, while the use of wood in the doors and windows and the use of wood and metal in fences are seen. Projection method: The most common method is mixed technique.



Fig. 5. Houses' Façades

**Evolutions in decorations:** brickwork: In the early years of this era, brick-made ornaments were seen

in façades, portals, inscriptions, window frames, columns, Taq's walls, and gusset plates. Types:

molded and carved: These types of bricks have been used in different sizes and forms with diverse designs and motifs in the façade of buildings. Frame carving (qavareh bori): This type of brick is made of flat or

curved pieces of brick with different motifs. Sealed or designed with motifs: This brick with square, rectangle, rhombus, and cross shapes with bold or carved motifs have been used in the façade.

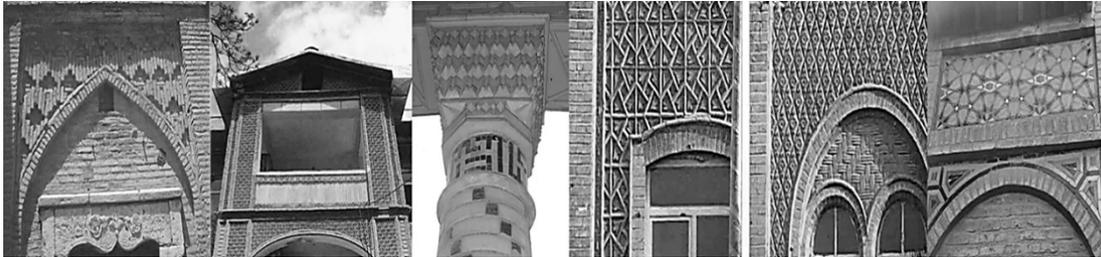


Fig. 6. Brickwork

**Tilework:** These areas are decorated in seven-color motifs of arabesque, Khatai, Shahs' images, literal, epic, Quranic, and mythological stories, flower and

bird, and dominant use of yellow and orange colors are seen in tilework decorations.



Fig. 7. Tilework

**Plasterwork and mirror ornaments:** With the influence of modernity in noble houses and the use of colored glasses decorated with flowers and bushes, arabesque, and curved mirrors became common and

projected with painting and calligraphy in context, formalization, ceiling, and muqarnas in mixed technique.



Fig. 8. Plasterwork and Mirror Ornaments

#### 4. ARCHITECTURAL FEATURES OF SELECTED HOUSES

According to the theoretical foundations, the case studies that revealed the influence of traditional and

Western architecture in terms of construction date were chosen and the architectural features of 8 houses were examined.

**Table 3. Selected Houses**

		Akbari House
Location	Feyz Abad Neighborhood	
Area	Jolokhan Passage	
Adjacency	Takyeh Beyglarbeygi	
Construction Period	Qajar	
Owner	Khajeh Joori Baghdadi	
Plan	Introverted	
Contradictory Aspect	Large windows that are not consistent with features of the introverted house	
Entrance	The connection between the entrance vestibule (hashti) with the pre-entrance area of the sitting room and courtyard	
Materials	Brick	
Ceiling	Wooden	
Roof	Thatch, asphalt, gable	
Decorations	Brick, hereh Chini (a kind of brickwork), wooden framing and plasterwork	
External Façade	Large windows and wooden consoles	
Internal Façade	Integrated facades, symmetric and balanced	
Terrace	Overlooking the courtyard	
Style	Baghdadi	
		Barookh House
Location	Feyz Abad Neighborhood	
Construction Period	Qajar	
Owner	Khajeh Barookh, Randeh Kesh	
Plan	Introverted	
Entrance	Brick-made portico facades and access to outdoor courtyard and indoor space	
Courtyard	Residential rooms on the northern side of the yard	
Materials	Brick	
External Façade	Brick-made column, brick-made, and muqarnas capitals	
Pond	On the northern side of the outdoor courtyard, lighting from two sides	
Hall	The western side of the courtyard	
Bath	Domed ceiling	
Decorations	Columned porch and metal fence	
Column	Column: ground and first floors and capital: muqarnas capital's body: Moalaghi Kari (a kind of tilework)	
Limitation	Northern side access is owned by another building	

## Sa'devandi Historical House

Location	Chanani Neighborhood
Area	Javanshir Street, Ayeneh Bath, Sadvandi Alley
Adjacency	Bazar
Construction Period	Qajar
Owner	Sadvandi
Plan	Introverted
Age	200 years
Entrance	With a narrowed angle and orientation toward the courtyard
Materials	Brick
Door	Wooden
Roof	Thatch, asphalt, gable
Ornaments	Brickwork: entrance, wooden decorations: doors and windows, Orsi, tilework and plasterwork, ceiling, and wall, colored glasses: west of the building
Façade	Symmetric and balanced
Climate	The climate affects the house formation
Creativity	Using the land slope



## Sarem Al-Doleh House

Location	Feyz Abad Neighborhood
Area	Modarres Street, Jolo Khan Passage, Beyglarbeygi Alley
Adjacency	Takyeh Beyglarbeygi
Construction Period	Qajar
Owner	Sarem Al-Doleh
Age	1889-1896
Plan	Introverted
Building	Two-story
Structure	Large indoor space and several courtyards
Materials	Brick
Ceiling	Wooden
Roof	Thatch
Ornaments	Portraits of Naser al-Din Shah and European faces
Façade	Brickwork and morans work of rooms
Spaces	Ground floor, south and west courtyards, upper floor on the western side
Courtyards	One of the courtyards is known as Akaskhaneh.



Samadi House

Location	City center	
Area	Modarres Street	
Construction Period	Qajar	
Owner	Samdi	
Plan	Inverted	
Entrance	Access to vestibule and corridor	
Materials	Brick	
Outstanding Point	Using elements of Western architecture	
Ceiling	Wooden	
Roof	Thatch	
Bath	Covered with brick-made portico	
Ornaments	Plasterwork, murals, and wooden decorations	
Façade	Brick-made	
Physical Features	Patterns of traditional and central architecture space of Iran	
Spaces	Underground and Shabestan; physical connection between houses with outdoor organic fabric; suitable and regular geometry in indoor space	
Courtyard	Indoor and outdoor	

Feyz Mahdavi House

Location	Allafkaneh Neighborhood	
Area	Bazaar	
Building	Two-story	
Construction Period	Qajar	
Owner	Feyz Mahdavi	
Plan	Inverted	
Structure	Integrated	
Entrance	Creating connections and keeping privacy	
Materials	Brick, clay, stone, wood, soil, metal, lime, plaster	
Ceiling	Wooden	
Roof	Gable	
Ornaments	Plasterwork, brickwork, metal fences, framing, and linework	
Western Front	Two brick-made columns with muqarnas capital, Sabat (an ecological feature)	
Spaces	Orsi and many rooms	

## Motazed Al-Doleh House

Location	Vaziri Neighborhood	
Area	Vaziri Square	
Construction Period	Qajar	
Owner	Motazed Al-Doleh	
Plan	Introverted	
Entrance	Access through the entrance gate and vestibule to the courtyard	
Eastern Side	Entrance gate, very beautiful Orsi, Vestibule, and bath	
The Northern and Western Side	Large rooms, Orsi	
Southern Side	Warehouse	
Materials	Brick	
Ceiling	Wooden	
Roof	Thatch, asphalt, gable	
Ornaments	Brickwork in external façade, Hereh chini, wooden framing, plasterwork	

## Yazdi House

Location	Feyz Abad Neighborhood	
Area	Imam Joma Street	
Construction Period	Qajar	
Owner	Yazdi	
Plan	Introverted	
Courtyard	Three courtyards	
Materials	Brick	
Ceiling and Roof	Ceiling: on beam basement's ceiling: gable vault roof: thatch, gable, steel-made	
Ornaments	Columned porch, arch, brickwork, and plasterwork decorations	
External Façade	Brickwork, steel-made fence, wooden decorations, Moalaghi Kari	

### 5. COMPARATIVE EVALUATION OF THE EFFECTS OF TRADITIONAL AND WESTERN ARCHITECTURE DEVELOPMENT IN DECORATIONS OF SELECTED HOUSES

The comparative evaluation has been done by determining the influence of architecture on the determined components of "structure, element, and

use in decorations." The influence process and rate have been expressed as the ratio of the number of traditional and Western architectural features in each index to the whole traditional and Western architectural features related to that index based on the percent. The results of this analysis have been effective in answering the questions of this research based on the comparison between determined components and evaluating them.

**Table 4. Architectural Decorations**

First Step: Influence of Traditional Architecture					
	Type	Shapes and Motifs	Symmetry	Images	Color
Structure	Priority of Interior to Exterior Decorations	The Originality of Nature-Alike Shapes and Motifs in Geometric Shapes of Arabesque and Khatai	Creating Symmetry in Decorative Motifs	Lack of Using Images of Abstract Creatures	Priority of Using Cold Colors to Warm Ones
Elements	Inscription, Muqarnas	Marquetry, Painting, Brickwork	Mirror Decoration, Lime Work	Colored Glass, Karbandi (a Type of Portico Coverage)	Tilework, Colorwork, Plasterwork
External Decorations					
Application	Brickwork	Tilework	Columns and Taq Facades	Fountain	Green Space
	Internal Decorations				
Application	Brickwork	Tilework, Plasterwork	Wooden Ceilings with Gereh Chini	Colorwork, Mirror Work	Karbandi, Mural, Lime Work
Second Step: Influence of Western Architecture					
	Type	Shapes and Motifs	Symmetry	Images	Color
Structure	Priority of Interior to Exterior Decorations	Free Shapes and Natural Motifs or Neoclassic Geometric Decorations	Lack of Symmetry in Decorative Motifs	Using Images of Abstract Creatures	Priority of Using Warm Colors over Cold Ones
Elements	Inscription, Muqarnas	Marquetry, Painting, Brickwork	Mirror Work, Luster	Colored Glass, Tilework, Plasterwork	Wallpaper, Painting, Centauri
Flat and Bold Ceilings; Velvet Curtains and Sculpture					
External Decorations					
Application	Brickwork	Tilework	Columns and Taq Façades	Fountain, Green Space	Centauri, Door and Window
	Internal Decorations				
Application	Tilework, Plasterwork, Colorwork, Wooden Ceilings with Gereh Chini, Mirror Work, Painting on the Cloth, Cloth Wallpaper, Luster, Velvet Curtains, and Sculpture				

Case studies are evaluated based on the determined indicators.

Table 5. Evaluating Indicators

Averaged Status of first and Second Steps			
Results of Evaluation	Structure	Elements	Application
Akbari House	90%	47%	46%
Barookh House	70%	50%	63%
Sa'devandi Historical House	100%	68%	71%
Sarem Al-Doleh House	70%	80%	79%
Samadi House	60%	68%	77%
Feyz Mahdavi House	80%	59%	76%
Motazed Al-Doleh House	80%	77%	80%
Yazdi House	80%	56%	70%

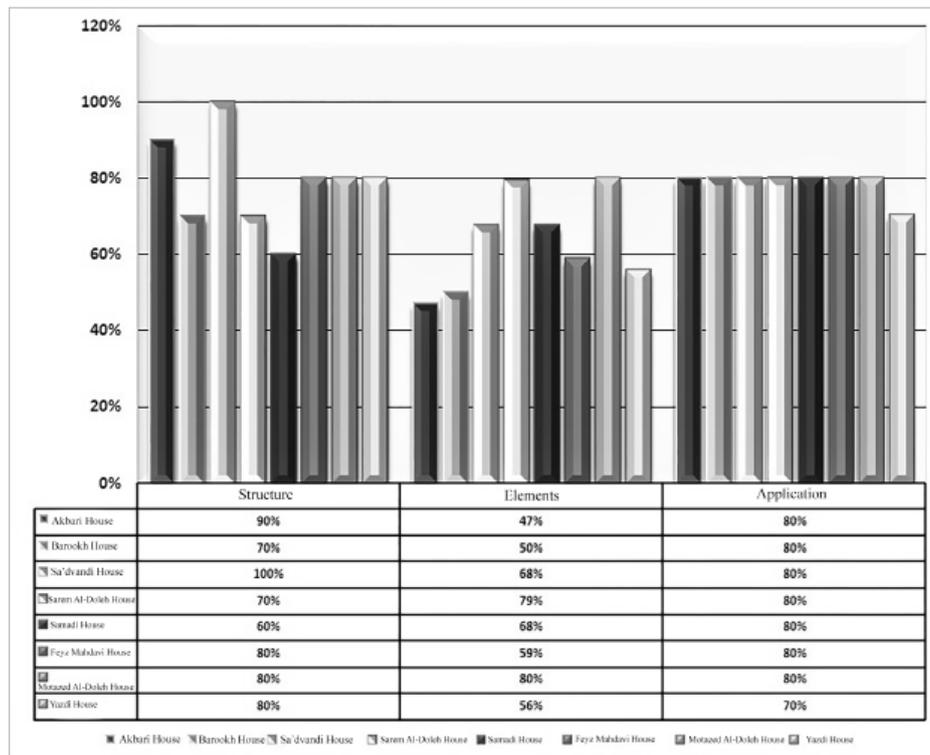


Fig. 9. Indicators

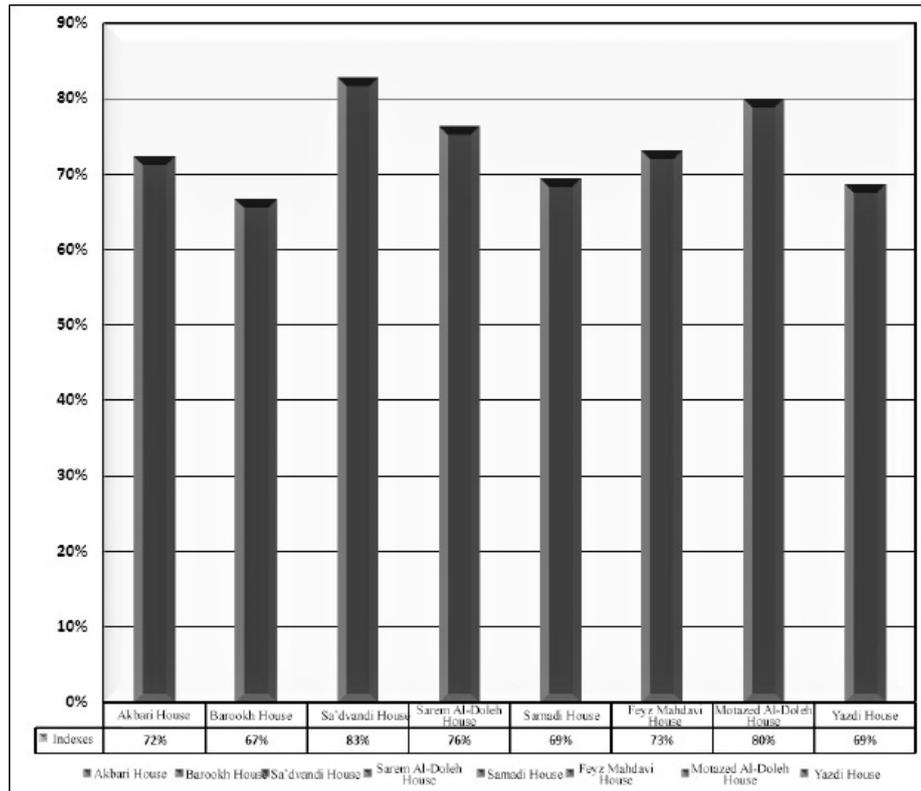


Fig. 10. Influence Rate

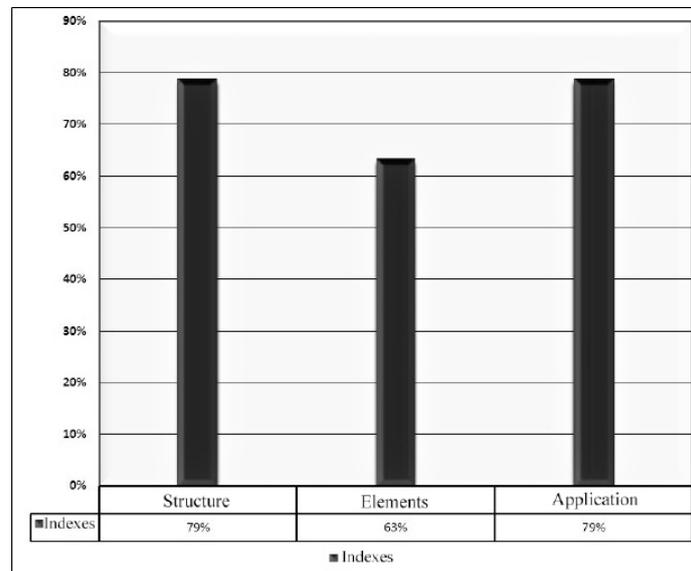


Fig. 11. Relative Percent of Indicators' Influence

Findings obtained from the assessment of different architectural periods, spatial structure patterns, and comparative analysis of features, being influenced by traditional Persian architectural components and influence of western architecture development in 8 houses indicate that:

Evolutions in the architecture of houses in the first period with traditional style appeared inspired by

ancestors keeping the original identity and criteria of Iranian architecture from smooth skyline, staircase in building axis, and central design in introverted technique. In the second period with Western style, when a wide range of effects of Western art and architecture began in Iran, the evolutions appeared under the inspiration of Western architecture of smooth skyline, staircase in building axis, and

central courtyard in building design in extroverted technique. In the third period with mixed style, evolutions appeared under the inspiration of ancestors and modeling the mixed traditional and western architectures regarding smooth and broken skyline, staircase in building axis and central courtyard and indoor stairway influenced by the west in building design through extroverted technique.

Evolutions in the structure of buildings in the first period appeared as two floors with flat wood-made roofs, while these developments appeared as two floors with inclined metal roofs and flat roofs made of wooden beams in the second period. In the third period, these changes are seen as two or three floors with inclined metal roofs and flat roofs made of wooden beams.

Evolutions have influenced the spatial structure patterns within two different structures in the first and second periods: introverted pattern, while this pattern is seen as introverted-extroverted design in the third period.

Decoration evolutions have appeared in all three architectural periods. In the first period, these changes appear with the following features: symmetry in the façade, sharp arches, cruciform arch, plasterwork, muqarnas and karbandi, Marquetry, brickwork, clay, and seven-colored tile, decorated Orsi with more details. The second period appears with the features of a protruded forehead, semi-circle arches, roof decorations, western column, and capital, semi-bold plasterwork under the influence of western motifs, realistic murals, brickwork, clay and seven-colored tile, Orsi ornaments, and colorful glasses. The third period has been manifested with the features of the protruded forehead of buildings, semi-circle arches, roof decorations, cruciform arches, western columns, and capital, plasterwork, and painting inspired by nature with Western attitude, muqarnas and karbandi, brickwork, clay, and seven-colored tile and metal doors.

According to the results of evaluated decorations, indicators include "structure, elements, and application in ornaments" and are influenced by the following components of traditional and Western architecture:

In the first step, the structure has been addressed with application in the type of "priority of interior decorations to the exterior ones," motifs and shapes "originality of nature-alike shapes and motifs as geometric arabesque and Khatai shapes," symmetry "creating symmetry in decorative motifs," images "lack of using images of abstract creatures," and color "priority of cold color to warm ones." In the first step, elements are analyzed based on the application in the inscription, muqarnas, marquetry, painting, brickwork, mirror decoration, lime work, colored glass, Karbandi (a type of portico coverage), tilework, color work, and plasterwork. In the first step, the application appeared in external decorations as "brickwork, tilework,

columns and Taq facades, fountain, and green space", and in internal decorations as "brickwork, tilework, plasterwork, wooden ceilings, colorwork, mirror work, Karbandi, mural, and lime work." In the second step, the structure has been investigated with application in type "priority of interior to exterior decorations," shapes and motifs "free shapes and natural motifs or neoclassic geometric decorations," symmetry "lack of symmetry in decorative motifs," images "using images of abstract creatures" and color "priority of using warm colors to cold ones." In the second step, elements are analyzed with application in the inscription, muqarnas, marquetry, painting, brickwork, mirrorwork, luster, colored glass, tilework, plasterwork, wallpaper, colorwork, Centauri, ceilings, velvet curtains, and sculpture. In the second step, the application appeared in external decorations as "brickwork, tilework, columns and Taq façades, fountain, green space, Centauri, and door and window" and in internal decorations as "tilework, plasterwork, colorwork, wooden ceilings with gereh chini, mirror work, painting on the cloth, cloth wallpaper, luster, velvet curtains, and sculpture."

The indicators influenced by decorations of traditional and Western architecture include structure that is at its highest level in "The Sa'devandi Historical House" while is at its lowest level in "Akbari, Feyz Mahdavi, Motazed Al-Doleh, Yazdi, Barookh, Sarem Al-Doleh houses" and in "Samadi House," respectively. The index of elements was at its highest level in "Motazed Al-Doleh House" while was at its lowest level in "Sarem Al-Doleh, Sa'devandi, Samadi, Feyz Mahdavi, Yazdi, and Barookh Houses" and in "Akbari House," respectively. The index of application was similar in "Akbari, Barookh, Sa'devandi, Sarem Al-Doleh, Samadi, Feyz Mahdavi, Motazed Al-Doleh houses" while is at the lowest level in "Yazdi House." The influence of traditional and Western architecture' decorations was at the highest level in "Sa'devandi House" while was at the lowest level in "Motazed Al-Doleh, Sarem Al-Doleh, Feyz Mahdavi, Akbari, Samadi, Yazdi Houses" and "Barookh House," respectively. The relative percentage of indices' influence and relative percentage were similar in "structure and application" and then seen in "elements."

## 6. CONCLUSIONS

Architectural evolutions in the Qajar era appeared with the incidence of development and influence of Western patterns in the traditional space of the Iranian community; these developments were enhanced under the influence of social relationships, division of walks of society, and the advent of new needs, formation and development of spaces that are different with the lifestyle of various groups of people. Results of this study indicate that modernism and development in Qajar architecture of Kermanshah appeared after the

formation of city ecology, the construction of streets and neighborhoods, and the creation of new spaces, changes in form, walls, and decorations in physical structure in the architecture field. The introduction of Western patterns to residential architecture led to the appearance of decoration developments in tilework, brickwork, mirror work, plasterwork, muqarnas, marquetry, painting, and the use of colored glasses, which comprised abstract, arabesque and Khatai shapes, landscapes, and haunting grounds, images of Shahs and princes in terms of the color and diversity of decorative topics and motifs influencing a wide area of city fabric. Evaluations indicate the structure is at the highest and lowest levels in Sa'devandi and Samadi houses, respectively; the elements in Motazed Al-Doleh and Akbari houses were at the highest and lowest levels, respectively, and application was at the lowest level in Yazdi House while was equally at the highest level in other houses. The evaluated influence rate of decorations indicates Sa'devandi House has the highest level while Barookh House has the lowest level. The evolution of the relative influence percentage of indices indicates that the structure and application of decorations are equally at the highest level, and decorations' elements are observable. The comparative analysis, evolutions

in decorations have appeared in three different architectural periods "traditional style, western style, and mixed style." According to the main indices in evaluation, influence, and modeling, decorations have been manifested in the first period inspired by ancestors, keeping original identity and criteria under the effect of traditional decorations' components. These decorations appeared in the second period after the beginning of wide influences of Western art and architecture in Iran under the effect of Western decorations' components. Finally, these decorations appeared as mixed ornaments in the third period inspired by ancestors and Western architecture. The following subjects are suggested for further studies:

- 1) analytical and comparative assessment of house decorations in houses through regional studies in other areas of Iran;
- 2) using research method steps of this study for analyzing similar topics in different historical eras of Iran;
- 3) examining the dependence of buildings on architectural art in the historical period through regional studies in other areas of Iran;
- 4) recreating the identity and function of houses in the central core of cities and providing tourism destination by urban planners and designers.

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## CONFLICT OF INTEREST

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