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Physical Typology of Qajar Houses in Urmia*

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ABSTRACT

Qajar houses in Urmia are precious examples of Iranian architecture, though not comprehensively studied despite their various and peculiar patterns. Using a mixed research method (descriptive-analytical and historical interpretation), the present study aims to identify and analyze the Qajar housing in Urmia and the way it's been influenced by various factors as well as to identify the physical patterns of houses to classify them. Due to the destruction of most historical houses in Urmia and the lack of registration and collection of all examples, 13 healthy and stable examples are examined using library and field studies along with the review of historical documents. The results show that many features of houses in Urmia have been somehow coordinated with cultural, religious, economic and social variables, and despite the existence of common concepts in the formation of physical patterns (e.g. climate, economics, politics, etc.), there are obvious physical housing differences. According to the physical analysis results, the social class of the residents has played a prominent role in the physical classification of the houses.

Keywords: Historical Houses, Urmia, Physical Typology, Qajar Period.

* The present article is taken from the second author's master thesis entitled "Designing the garden of a museum of forgotten houses with a cultural tourism approach (with a case study of Qajar to contemporary houses in Urmia)".

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1. INTRODUCTION

Despite the richness of the architectural history of Urmia, over the years, various factors like long wars and numerous attacks, social, economic, and cultural developments (e.g. migration and population growth), and urban plans, particularly in the post-Qajar historical period have caused fundamental physical changes in the main texture of the city. Hence, the need for research on historical houses as the precious historical and architectural assets of the city is undeniable. To this end, the present work attempts to realize a cognitive study in the form of the physical typology of historical houses in Urmia, especially those from the Qajar period. Further, a reflection on the architecture of houses -built in accordance with the needs of the inhabitants of that era- might be beneficial to obtain a proper design for today's housing. Based on the conceptual model of the research, once 13 examples of Qajar houses in Urmia are selected and their geographical areas are examined, their physical characteristics are analyzed by classifying houses into two aristocracy's houses and ordinary people's houses classes to identify the factors effective in forming the architectural body of the houses.

2. RESEARCH QUESTIONS

- What are the physical characteristics of the late Qajar houses in Urmia?
-What are the factors effective in the physical formation of the Qajar houses in Urmia? What is the impression manifestation of each component on the house body?
- How does the residents' social class affect the physical differentiation of the houses?

3. METHOD

As a mixed method study (descriptive-analytical and historical interpretation) and due to the dispersion of Qajar houses and the lack of registration and cognitive documents, 13 examples were selected by visiting historical sites and running field procedures like roleve and oral interviews with informed individuals and the old residents.

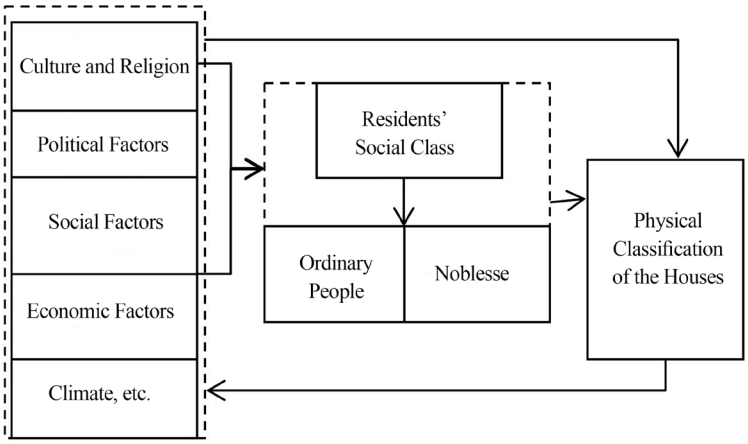


Fig. 1. Analytical Model of Research

4. BACKGROUND OF THE STUDY

Numerous studies have addressed houses in different cities of Iran from diverse aspects. Among the articles on the typology of Qajar houses and the relevant concepts, Ghasemi and Memarian (2010) have studied the typology of Qajar houses in Isfahan. Ghelichkhani et al. (2013) have explored the physical changes of Qajar houses in Gorgan. Ebrahimi et al. (2016) have presented the influence of Western concepts on the architecture of late Qajar houses in Hamedan. Yaran and Behroo (2017) have addressed the impact of Islamic culture and ethics on housing and spatial body of Qajar houses in Ardabil. Among the studies on historical houses in Urmia city, one can refer to Zarabi Al-Husseini and Yazdanfar's (2014) study where the impact of lifestyle on the spatial organization of houses in Urmia city was investigated by studying the impact of lifestyle, culture, and livelihood. However, no comprehensive research has been done on the classification of historical houses in Urmia, considering the role of social, economic, political factors, etc.. Therefore, the current work discussed the physical changes of Qajar houses in Urmia with respect to the influence of various factors and revealed the social class as the most influential factor in the formation of Qajar houses. Therefore, two macro-categories were introduced and analyzed for the physical patterns of Qajar houses in Urmia: houses of the noblesse and ordinary people.

5. LITERATURE REVIEW

5.1. Features of Qajar Houses

Past houses were a safe haven for the inhabitants and respect for their privacy and the principle of privacy were the main features of the houses. Most of the houses were single-core (including a central courtyard) and only few of them - those for the aristocratic and prominent classes of society- had two connected cores (more than one central courtyard) (Soltanzadeh, 2005). In the past, the houses were introverted, the spaces were organized around the central courtyard with no openings or windows to the public passage, brick and clay were the main materials, and facades were simple. In general, ordinary people and the nobleness's houses were traditionally built according to the basic principles of Iranian architecture (Gharib, 1995). In the Qajar period, the construction of houses and residential units flourished more than any other historical era. Due to the type of government and the domination of the nobility's governance in villages and cities, the houses specific for the noblesse and authorities began to be constructed. So, these houses can be claimed as the flourishing point of house-building and the manifestation of architectural features in Qajar era. Some architectural features of Qajar houses include the construction of alcove in the middle of the main side of the building, the columned porch in front of the alcove, the adjoining rooms around the central room, and so on. It is worth mentioning that at the end of the era and by modeling the western architecture in nobleness' housing, the feature of introversion was replaced with extroversion and some elements of the Western style such as sloping ceilings, numerous columns, and luxuries in the decorations entered the architecture of houses (Zumrashidi, 2011).

In the traditional Iranian house, the main entrance door with a recess from the passage provides pause space and directs individuals to the vestibule and then to the corridors after passing through frequent turns. In this way, in addition to separating the alley from the private space inside the house, the entrance space had a peculiar climatic performance. In general, in all traditional houses, the placement of spaces on different fronts of the central courtyard, while defining specific spaces for the residents, provided the possibility of benefiting from the compatible-adaptive architecture (Moradi & Amirkabirian, 2002).

5.2. Qajar Houses in Urmia

Natural factors are among the special and very influential factors on the plan pattern physical formation of traditional houses and the orientation of the building (Almusaed, 2011). Due to the influence of natural factors on the urban fabric of Urmia, the historical texture and neighborhood of the city have a high density and the houses are compact and often introverted. But in addition to natural factors, the cultural, social and economic characteristics of the residents have also had a significant impact on the physical formation of houses in each period. Putting together the plan and pictures of the Qajar houses, it is clear that the houses fall into two general categories: (a) houses belonging to the aristocratic class (noblesse) of the society, (b) houses belonging to the ordinary people of the society Noblesse' houses were analyzed by three examples: Ansari's House, Shahriyar Khan Azaz al-Dawla's House and Fathi Afshar's House. The houses belonging to the ordinary people were analyzed by 10 examples. The results of the analysis show that the houses belonging to the ordinary people -built in the late Qajar period- can be assigned into two physical categories. Since the examples of each category are physically similar, only a house is selected from each as the common pattern (Table1- 3 and 1-4).

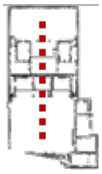
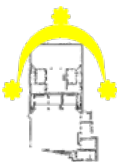
5.1.1. Common Physical Characteristics of the Aristocratic Class's Houses

Ansari, Fathi Afshar and Azaz al-Dawla houses are the examples left from Qajar era. Their architecture consists of interior and exterior parts, which are peculiar features. The houses have an introverted pattern and the spaces are located around the central courtyard. The pattern, by indirectly defining the entrance of the house from the public passage that is mainly separated by a corridor, has strengthened the principle of privacy, and climatically, the alcove and the rooms on the upper floor are often oriented towards the sun. A symmetrical plan and facade, a rectangular courtyard with a small fountain in the middle, the placement of stairs and access to the upper floors on the corner of the courtyard and the wooden roof - often with flat or low-sloping wooden beams- are of the common and general features of the houses. In the buildings, single- and double-window openings were used, the permeability level of which was higher in the upper floor than in the ground floor. Brick was the main material, especially in the facade. The interior of the walls and rafters were also made of clay. The ground floor was made of masonry up to a height of 2 meters to cope with climatic factors. Red clay bricks, turquoise glazed bricks and seven-color tiled inscriptions were used in the decoration of facades. The opening frame was made of turquoise wood. Plasterwork was used in the interior spaces. In the facade of the walls facing the courtyard, there are semicircular arches. Brick arches and decorations or elongation and prominence of the portal emphasize the main entrance of the house. In order to obtain the physical model of the mentioned houses, the analysis of the plan and facade as well as the body components is presented in Table 2 and 3.

Table 1. Examples of Houses from the Late Qajar Period

Moayedzadeh House	Charlize Aslan House	Shahriar Khan Azaz Al-Dawlah House	Ansari House
Period of Construction: Late Qajar Residents' Social Class: Ordinary People	Period of Construction: Late Qajar Residents' Social Class: Ordinary People	Period of Construction: Late Qajar Residents' Social Class: Noblesse	Period of Construction: Late Qajar Residents' Social Class: Noblesse
			
Ataiee Street House Residents' Social Class: Ordinary People	Mirza Agha Ettihadiyeh House Residents' Social Class: Ordinary People	Hadidi House Residents' Social Class: Noblesse	Fathi Afshar House Residents' Social Class: Noblesse
			

Table 2. Plan Analysis of Noblesse' Houses

Shahriar Khan Azaz Al-Dawlah House	Ansari House	Plan analysis components
Symmetry to the main axes of the building	Longitudinal and transverse symmetry in alcove 	Longitudinal symmetry in alcove 
The way of connection with outdoor space	Outer yard and backyard	Outer yard and backyard
Number of floors	2floors with a basement, with a low-height basement in alcove; the first floor is prominent, high and with decorations around the central courtyard	2floors without basement, with a low-height basement in the alcove and the western front of the building, a two-floor alcove- the first floor is prominent with decorations around the central courtyard.
Climate zoning	With areas facing and back to the sun 	With areas facing and back to the sun 
The way of connection with the ground	Construction of the house at a level close to zero, the basement under the alcove	Construction of the house at a level close to zero, the basement under the alcove, and the western front of the building

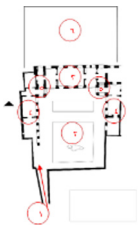
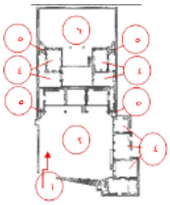
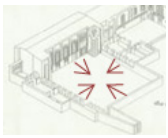
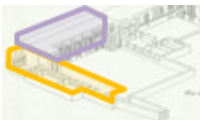
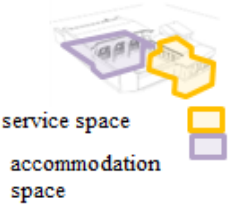
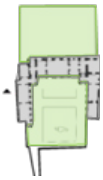
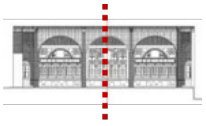
Plan analysis components	Ansari House	Shahriar Khan Azaz Al-Dawlah House
Access hierarchy	Public passage, entrance portal, corridor, outer yard, alcove, adjoining rooms, backyard 	Public passage, entrance portal, outer yard, alcove, adjoining rooms, backyard 
Spatial diversity (open, semi-open, closed)	Sequence of movement from the yard (open space) to the earrings (semi-open space) and rooms (closed space)	Sequence of movement from the yard (open space) to the porch and earrings (semi-open space) and rooms (closed space)
Relation with nature	With outer and back yard 	With outer and back yard 
Climatic organization of spaces	- Summer residence (basement and terrace) and winter residence (chair room) - Lighting of the main spaces (alcove and main rooms) in two directions from the outer and back yards and service spaces in the form of small openings from one front	- Summer residence (basement and terrace) and winter residence (chair room) - Lighting of the main spaces (alcove and main rooms) in two directions from the outer and back yards and service spaces in the form of small openings from one front
Spatial organization of the plan	Introversion (organizing the spaces of the house around the central courtyard - the rooms openings lead to the courtyard without connection with the public passage) 	Introversion (organizing the spaces of the house around the central courtyard - the rooms openings lead to the courtyard without connection with the public passage) 
Spatial zoning of the plan	- Separate service and accommodation spaces and the connection of them through the yard - Separate private accommodation space (rooms) and guest accommodation space (alcove) 	Separate service and accommodation spaces and the connection of them through the yard - Separate private accommodation space (rooms) and guest accommodation space (alcove) 
The proportion of open and closed spaces	Allocation of a significant percentage of the land to the open space (yard) compared to the closed space  Open space Closed space	Allocation of a significant percentage of the land to the open space (yard) compared to the closed space  Open space Closed space
Dimensions and proportions of open and closed spaces	-Using rectangular geometry with almost equal length and width in the construction of the yard - Using rectangular geometry in the construction of rooms and enclosed spaces	-Using rectangular geometry with almost equal length and width in the construction of the yard - Using rectangular geometry in the construction of rooms and enclosed spaces

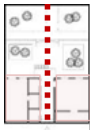
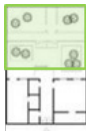
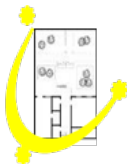
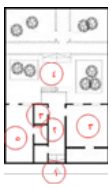
Table 3. Facades Analysis for Noblesse' Houses

Façade Analysis Components	Ansari House	Shahriar Khan Azaz Al-Dawlah House
Symmetry	Symmetry to the main axis of the building 	Symmetry to the main axis of the building 
Skyline	Smooth and uniform skyline 	Smooth and uniform skyline 
Geometric Proportions	Two-part view(limited and low-height basement view- First floor view as an important and dominant view with higher height) - Repetition and rhythm in views to the courtyard by elements like windows, arches and prominent lines 	Two-part view(limited and low-height basement view- First floor view as an important and dominant view with higher height) - Repetition and rhythm in views to the courtyard by elements like windows, arches and prominent lines 
Materials	Door and window frames are wooden and turquoise - ground floor is made of masonry up to 2 meters, and the rest of the building is made of brick (red clay brick - turquoise glazed brick)	Foundation materials: carcass stone, sand and lime mortar - Brickwork: with geometric designs on the facade and turquoise glaze in arches and openings frame- walls: 5 × 20 × 20 cm red baked bricks, seven-color tiles and glazed turquoise bricks- Openings: Sash with colored glass
Protrusion and Indentation in	Protrusion in stairs located in the corner of the building	Volume protrusion in stairs located in the corner of the building - protrusion and indentation in porch
Decorations	 Interior of the building: a simple bed with colored glass above the doors and windows Yard and outer wall: turquoise stringcourse in window frames - cordon (carved) - Quranic verses in the form of inscriptions - seven-color tiles 	Interior of the building: a simple plasterwork with colored glass above the doors and windows Yard and outer wall: Entrance portals of symmetrical crescent arch - turquoise brick decorations on the margins, lights, columns and walls - Masonry plinth - columns and semi-prominent arches on the porch, porch front with seven-color tiles
Typing of Openings	Low window oucapenci kingston benchmark (OKB) on the first and second floor - Stretched proportions of the openings (large ratio of length to width) - Larger dimensions of the openings on the first floor compared to the basement -larger windows in alcove	Low window oucapenci kingston benchmark (OKB) on the first and second floor  - Stretched proportions of the openings (large ratio of length to width) - Larger dimensions of the openings on the first and second floor compared to the basement -larger windows (sash) and colored glass in alcove
Shading Elements	-	North and south front porch

5.1.2. Physical Characteristics of the Ordinary People Houses

Moayedzadeh House, Hadidi House and Etehadiye House are the examples of the ordinary class's houses in the Qajar period. The houses have an introverted pattern and the spaces are located in one or two sides of the central courtyard. The pattern, by indirectly defining the entrance of the house from the public passage that is mainly separated by a corridor, has strengthened the principle of privacy, and climatically, the alcove and the rooms on the upper floor are often oriented towards the sun. A symmetrical plan and view, a square or rectangular yard , the placement of stairs and access to the upper floors on the corner of the courtyard and the wooden roof - often with flat or low-sloping wooden beams- are of the common and general features of the houses. The door and window frames are made of wood and plasterwork are used in the interior spaces. In the facade of the walls facing the courtyard, there are semicircular arches. Brick arches and decorations or elongation and prominence of the portal emphasize the main entrance of the house. In order to obtain the physical pattern of the mentioned houses, the analysis of the plan and facade as well as the body components is presented in Tables 4 and 5.

Table 4. Plan Analysis of the Ordinary People's Houses

Plan Analysis Components	Type I Houses	Type II Houses
Symmetry to the main axes of the building	Symmetrical in the residential part (south side of the yard) 	Relative symmetry to the corridor axis 
The way of connection with outdoor space	A central courtyard 	A central courtyard 
Number of floors	One floor with basement	Two floors
Climate zoning	With areas facing and back to the sun 	With areas facing the sun and back to the sun 
The way of connection with the ground	Construction of the house at a level close to zero	Construction of the house at a level close to zero
Access hierarchy	Public passage-entrance portal-corridor-central courtyard-dependent rooms and service spaces 	Public passage-entrance portal-corridor-service rooms and spaces-central courtyard-kitchen-porch-guest house (upstairs rooms) 
Spatial diversity (open, semi-open, closed)	Sequence of movement from the yard (open space) to the corridor (semi-open space) and the rooms (closed space)	Sequence of movement from the yard (open space) to the corridor (semi-open space) and the rooms (closed space)
Relation with nature	With a central courtyard	With a central courtyard
Climatic organization of spaces	- Integration of winter and summer living space - Lighting of the main rooms through the central courtyard (often indirect light)- Corridor floor is lower than the alley floor - the ground floor is above zero- lack of infiltration of rainfall into the house	- Integration of winter and summer living space - Lighting of the main rooms through the central courtyard (often indirect light)- the yard floor is lower than the alley floor

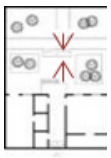
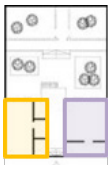
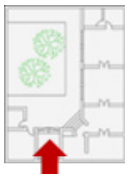
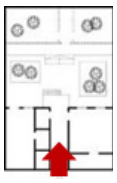
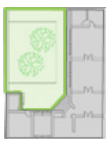
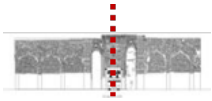
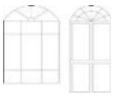
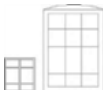
Plan Analysis Components	Type I Houses	Type II Houses
Spatial organization of the plan	Introversion (organizing the house spaces around the central courtyard - the rooms openings lead to the courtyard- no connection with the public passage 	Introversion (organizing the house spaces around the central courtyard - the rooms openings lead to the courtyard- no connection with the public passage 
Spatial zoning of the plan	Separate service and residential spaces and their connection through the yard; guest-specific rooms Service space Residential space 	Separate service and residential spaces and their connection through the yard; guest-specific rooms Service space Residential space 
Entrance	Through the middle corridor of the courtyard - No direct view from the public passage into the courtyard and residential spaces 	Through the middle corridor of the courtyard - No direct view from the public passage into the courtyard and residential spaces 
The proportion of open and closed spaces	Open space (yard) to closed space proportion is approximately equal. Open space Closed space 	Open space (yard) to closed space proportion is approximately equal. Open space Closed space 
Dimensions and proportions of open and closed spaces	Rectangular geometry in the construction of the yard, rooms and closed spaces	Rectangular geometry in the construction of the yard, rooms and closed spaces

Table 5. Facades Analysis of the Ordinary People's Houses

Façade Analysis Components	Type I Houses (Mid-Qajar)	Type II Houses (Late Qajar)
Symmetry	Relative symmetry to the main axis of the building in the outer wall - symmetry in the residential front (south side of the courtyard) 	Relative symmetry to the main axis of the building in the outer wall 
Skyline	Smooth and uniform skyline 	Smooth and uniform skyline 
Geometric Proportions	Two-part view(limited and low-height basement view- First floor view as an important and dominant view with higher height) - Repetition and rhythm in views to the courtyard by elements like windows, arches and prominent lines 	First floor view as an important and dominant view with higher height) - Repetition and rhythm in views to the courtyard by elements like windows, arches and prominent lines 

Façade Analysis Components	Type I Houses (Mid-Qajar)	Type II Houses (Late Qajar)
Typing of Openings	Low window oucapenci kingston benchmark (OKB) on the first floor - Stretched proportions of the openings (large ratio of length to width) - Larger dimensions of the openings on the first floor compared to the basement 	Low window oucapenci kingston benchmark (OKB) on the first floor - Stretched proportions of the openings (large ratio of length to width) - Larger dimensions of the openings on the first floor compared to the ground floor 
Shading Elements	-	South front porch
Decorations	Exterior of the building includes facade and courtyard: decorative arches, magnificent portals and brickwork decorations; Interior of the building: simple plastering with colored glass above the doors 	Exterior of the building includes the facade and courtyard: framing around the openings with the execution of a brick flat arch, in some cases magnificent portals and brickwork decorations - prominent brick columns - turquoise bricks in some buildings to frame the openings and columns; Interior of the building: simple plastering 
Materials	Rubble cordon- Other parts of the building: brick (red clay brick) - Brickwork: with geometric designs on the facade - Wooden door and window frame	Rubble cordon- Other parts of the building: brick (red clay brick) - Brickwork: with geometric designs on the facade - Wooden door and window frame
Protrusion and Indentation	Protrusion in stairs located in the corner of the building	Protrusion and indentation in porch

6. DATA ANALYSIS

Analyzing the tables, it is seen that in the late Qajar period and due to the tendency of Qajar kings to the West, there are obvious changes in the architecture of the era; e.g. the use of semicircular arches, more decorations in the sides facing the courtyard, columns, capitals, and so on. But, these changes did not include all sections of society and first appeared in the kings' palaces and then in the houses of politicians, statesmen and nobles. At this stage, the existence of a gap in the house architecture is evident between the upper and the middle or lower classes of the society, which is demonstrated by the present research, too (significant architectural differences of Ansari, Shahriyar Khan, Azaz Al-Dowleh and Fathi Afshar houses with other houses studied). However, the changes, that are due to the Western architecture, were in line with the Iranian culture and society. Moreover, there are a group of interrelated factors that act as the main reasons for shaping the bodies of houses in this period.

Table 6. Effect of Different Factors on the General Pattern of Qajar Houses in Urmia

Factors	Effect
Cultural Factors	Houses are introverted (no house opens to the alley and all windows open to the courtyard) - Separation of private and public spaces of the house (importance of privacy) - Entrance is at the corner of the building and the yard is accessed generally through a space like a corridor, and the spaces inside the house are accessible after a distance from the main entrance door (lack of direct view from the alley to the interior spaces) - the noblesse' houses have two courtyards (one is located in front of the building and the other is more privately behind the building). This might be due to climatic (lighting) and cultural (more private use of the backyard) reasons. In cases, the backyard is used as a garden, which probably indicates the great interest of the people of this region in nature, royal sightseeing in the garden, privacy as well as their economic intelligence - the use of holy names and Quranic verses above the entrances, and the use of inscriptions above the windows (in Muslim houses) to bless the house and make it safe
Natural and Climatic Factors	Dense and compact texture - General orientation of the building (often facing the qibla to receive maximum southern light) - Houses with courtyards (not necessarily the central courtyard) to illuminate the spaces from the courtyard - Low height of residential spaces - Definition of entrance filter (no direct entry from open space to closed one and no direct air transfer) - Houses with basements (function: as a winter residence in cold seasons and summer residence in warm seasons) and a significant reduction in indoor and outdoor heat exchange - open areas facing and back to the sun (4-season houses and the possibility of seasonal migration in the house) - flat skyline- Materials with high heat capacity (stone, clay, etc.) - Difference in lighting based on the space function (main spaces receive direct light and service spaces often receive indirect light)
Political Factors	The low height of the entrance door (where the courtyard connects to the public passage) and often the use of high walls or construction of spaces above the entrance to completely cover the entrance (Urmia has ever had attacks and political unrest, so security is a critical issue in this region)
Economic factors	Significant effect of social class on housing pattern - allocation of spaces for servants in aristocratic housing - large yards or vineyards in aristocratic housing - difference in dimensions and shape of spaces - difference in decorations and materials
Technical-Structural Factors	Flat skyline with wooden beams - Use of vernacular materials (such as clay, stone, brick, etc.) - Construction of load-bearing walls (thick rafters) and strong foundations
The Common Pattern in Society	Undoubtedly, the appearance of any model in society is considered and imitated by other people, especially ordinary people, for a while and it is presented as a pervasive model in the society; for example, the location of the stairs in the aristocratic house, which is built from two corners, or the use and combination of materials, facade framing, decorations, etc.

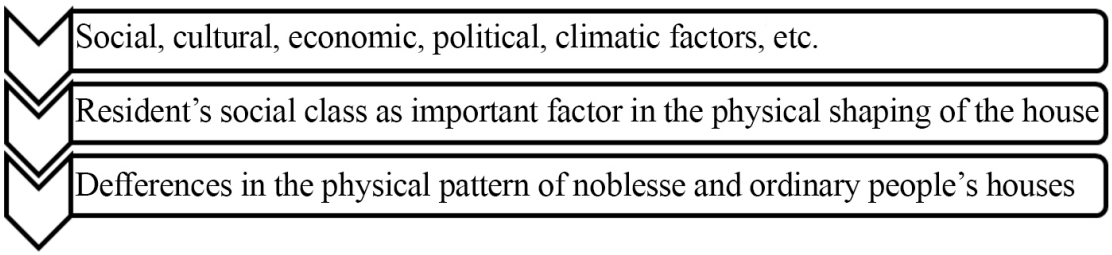


Fig. 2. Research Conclusion Process

7. CONCLUSION

As shown by studies, many features of Qajar houses in Urmia were somehow coordinated with cultural, religious, economic and social, and other factors. The social class of the residents played a dominant role in the physical formation and sorting of the houses. Accordingly, the general and common physical pattern of the two classes can be categorized and presented as the following table.

Table 7. Physical Typology of Historical Houses of Urmia in the Qajar Period

Physical Analysis Components		Noblesse' House	Ordinary People's House	Common Features
Plan Pattern	Entrance Position	Defined entrance - corner of the yard through the corridor	Defined entrance - the middle of the courtyard through the corridor	A magnificent portal, and a corridor to separate the interior of the house from the outside
	Spatial Organization	Introverted around the inner and outer courtyards	Introverted (enclosed yard)	Introversion of the plan to maintain privacy
	Number of Floors	With a basement- 2 or 3 floors including the basement	With basement - 2 floors including basement (later houses without basement)	At least 2 and at most 3 floors with basement
	Space Syntax	Room-by-room plan (definition of a space prior entering the rooms)	Room-by-room plan (defining the front pre-entry space for rooms)- the pattern of 2 rooms with a vestibule at the end of the era	Room-by-room plan (definition of a space prior entering the rooms)
	Shape of the Plan	Rectangle stretched along the yard	Rectangle stretched along the yard	Rectangular plan in harmony with the climate
Façade Plan	Symmetry	Symmetrical on the side facing the public passage and the yard	Symmetrical on the side facing the public passage and the yard	A symmetrical view
	Openings	Elongated openings (length to width ratio is 2 to 1) with low OKB - wooden sash	Elongated openings (length to width ratio is 2:1) with low OKB - wooden doors and windows	High and low-width openings due to the influence of the sun in winter - low OKB for having a view to the yard
	Stairs Position	As a protruding volume in the two corners of the alcove	Often in the corners - stairs connected to the porch in later examples	Often in the corner of the building
	Openings Positions	In the inner walls of the plan and facing the central courtyard	In the inner walls of the plan and facing the central courtyard	In the inner walls of the plan and facing the central courtyard (maintaining privacy)
	Outside Finish with Bricks	A lot of brickwork in the walls facing the yard	A lot of brickwork in the walls facing the yard and entrance portal	Outside finish and wall construction in the views facing the public passage and the yard
Decoration	Semicircular Arches	Semicircular arches above openings	Semicircular arches above openings - Flat arches at openings in later examples	Semicircular arches above openings after the West, and facilitation of structural load transfer
	Decorative Arches	Decorative arches on the walls facing the courtyard and interior spaces	Decorative arches on the walls facing the courtyard and interior spaces	Decorative arches on the walls facing the courtyard and interior spaces
	Brick Art	The art of brickwork in the form of brick girih tiles and colored bricks (mostly turquoise and clay)	The art of brickwork in the form of brick girih tiles and colored bricks (mostly turquoise and clay)	The art of brickwork in the form of brick girih tiles and colored bricks (mostly turquoise and clay)
Structure	Roof Type	Flat ceiling with wooden beams	Flat ceiling with wooden beams- Sloping ceiling in later examples	Flat ceiling with wooden beams
	Structure Type	Bearing wall with wooden columns	Bearing wall with wooden columns	Bearing wall with wooden columns
	Foundation Type	Stone foundation with concrete-lime mortar	Stone foundation with concrete-lime mortar	Stone foundation with concrete- lime mortar
Materials	Vernacular	Brick-wood-clay and stone	Brick-wood-clay and stone	Brick-wood-clay and stone

According to the analyses, there are various factors (e.g. climatic, political, economic, social, etc.) playing role in the overall formation of the late Qajar houses in Urmia. Nevertheless, studies on physical patterns (plans and facades) of the houses imply that the social class is the most important factor distinguishing the houses body. Thus, the late Qajar houses in Urmia fall into two general categories of noblesse and ordinary people so that the houses belonging to the aristocratic class, physically and by plan, have more floors and area, multiple courtyards (interior and exterior), various residential and service spaces, and a larger and more magnificent reception hall. Moreover and by facade pattern, they are blessed with more diverse walls and decorations than the ordinary people's houses. However, the common patterns of the era's houses highlight concepts like introversion and maintaining privacy inside the house, self-sufficiency (supply of vernacular materials, etc.), the type of materials, the use of brick art as a major decoration in the walls, the use of the symmetry principle, balanced proportions, and maximum coordination in order to adapt to the climate.

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