An Integrated Framework for the Architectural Evaluation of the Identity of Qajar Houses

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ABSTRACT

Throughout the history of architecture in Iran, the term identity has been changed due to the dynamic and temporal aspects shaping the identity of architecture. Mainly, during the Qajar period (1795-1925) due to social, political, and economic changes, there was a sharp milestone from the vernacular approach of design to more contemporary approaches of construction which led to the development of a specific identity in architecture of houses in Qajar period.

In this regard, this study aims to develop an integrated framework to assess the identity of Qajar houses. The methodology developed in this study is mainly qualitative assessment based on content analysis and case studies. Historical analysis has been used to assess as applicable technique on the case studies in Qajar period. Overall, the methodology in this qualitative grounded theory study will be classified into three main parts: a) Discourse and content analysis b) Historical analysis c) Site survey. Accordingly, indicators shaping the identity of architecture have been classified into seven main groups and further developed based on static and dynamic organization which shapes the identity of traditional Iranian architecture.

The study also revealed that in Qajar period, there is a possibility of classifying the identity of architecture into three main periods. Overall, it reveals that the amalgamation of the dynamic and static factors shaping identity is the most important factor that forms the identity of Qajar houses. Generally, it concludes that apart from radical social, political, economic and technological changes in the Qajar period, some traditional principles of housing (such as courtyards, simplicity in

design) are frozen, but culture - architecture- of privacy in design due to the people's religion is continuing.

Keywords: Identity; Traditional Iranian Houses; Transition period; Qajar period.

ÖZ

Mimari kimliği şekillendiren dinamik ve zamansal değişim etkenlerinden dolayı mimarlık tarihi boyunca İran mimarisine yönelik "kimlik" terimi, sürekli değişim göstermiştir. Özellikle sosyal, ekonomik, politik değişiklikler nedeniyle Qajar döneminin (1795-1925) geleneksel tasarım yaklaşımından, çağdaş inşaat yaklaşımlarına dönüşmesi ve mimaride belirli bir kimliği geliştirmeye yön veren keskin bir kilometre taşı olması, o dönemde konut mimarisinde özgün bir kimlik oluşumunun ortaya çıkmasına neden olmuştur.

Bu bağlamda tez, Qajar evlerinin kimliğini değerlendirmek için bütünleşik bir çerçeve geliştirmeyi amaçlamıştır. Çerçeveyi ortaya koyabilmek için Geleneksel İran Evlerinin tarihsel değerlendirmesine dayanan içerik analizi ve mimari kimliğe yönelik literatür çalışması ile nitel değerlendirme, yöntem olarak kullanılmıştır. Tez kapsamında mimari kimliği şekillendiren göstergeler, yedi ana gruba (Zamansal Değişiklikler, Semantik İlişki, Mekânsal Organizasyon, Genel Tasarım İlkeleri, Şekil ve Biçim, Yapı Malzemeleri, Bağlamla İlişki) ayrılmış ve geleneksel mimarinin kimliğini şekillendiren statik ve dinamik organizasyona dayalı olarak da geliştirilmiştir. Tez, Qajar dönemi mimari kimliğinin birinci, ikinci ve üçüncü olmak üzere üç ana dönemde sınıflandırılması yaklaşımını ve genel olarak kimliği şekillendiren dinamik ve statik faktörlerin birleşiminin Qajar evlerinin kimliğini oluşturan en önemli faktör olduğunu, ortaya koymuştur. Sonuç olarak Qajar döneminde sosyal, politik, ekonomik ve teknolojik anlamda yaşanan radikal değişimlerin yanı sıra iç avlu ve sadelik gibi konut tasarımındaki bazı geleneksel

prensipler dondurulmuş ayrıca, insanların dini inançlarından dolayı kültürün ana elemanı olan mahremiyet, tasarımlarda devam etmiştir.

Anahtar Kelimeler: Kimlik, Geleneksel İran Evleri, Geçiş Dönemi, Qajar Dönemi.

DEDICATION

To My Supervisor ***professor Dr. UĞUR DAĞLI***

For her unlimited love, patience, tolerance and support during the hard times of my study.

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INTRODUCTION

Due to the direct influence of globalization in changing the identity of local context, the term “identity” considered as one of the most arguable subject in the field of architecture (Lawrence, 1992). Meantime, the subject of "identity in architecture" is one of the most debated issues in the area of architecture, which has affected architectural thinking in the recent years. In this regard, defining a framework to assess the identity of architecture in one specific period is the main concern of this research as well as understanding how such a kind of globalized effect might influence the identity of architecture over time.

The association between architecture and identity as an aspect of the connection between the built environment and people has been a challenge for architects and scholars throughout history (Amirkhani, 2014). Despite the fact that the term “*identity*” has diverse meanings or interpretations in the different schools of thought (Moin, 2002; Moharami, 2004), they all, nevertheless, refer to the dynamic aspect of identity, meaning that “ time” is the most important factor in defining identity in a specific context (Moharami, 2004; Torabizadeh, 2011).

The Qajar period (1795-1925) of Iran is a very good example of the hybridization of the traditional style of architectural identity. In the Qajar period, there were many social, economic and political changes which led to the development of the identity

of the Qajar architecture. As a matter of fact, all the modifications in architectural design in the Qajar period signified the beginning of the change in the identity of Iranian traditional architecture. To this end, the main question of the thesis is to find out "*what are the factors shaping the identity of Qajar houses"*.

The methodology developed in this study is mainly based on qualitative content analysis. Historical analysis will also be used as an applicable technique as well as the other two approaches. The proposed qualitative methods of investigation will assess the content of the traditional principles of Iranian housing styles and construction in order to develop a theoretical framework to compare it with housing styles in the *Qajar* period (1795-1925). The focus of this research is to evaluate the contribution of the "Qajar period" in the transformation of the perception and meaning of the identity of traditional Iranian architecture in the contemporary period. In view of the essence of this study, historical analysis and documentary investigation on the history of Qajar houses will play a fundamental role in providing reliable resources with which to engage in a comprehensive discussion on the subject matter.

1.1 Problem statement

Nowadays, the concern of globalization is the main issue in contemporary architecture and urban design which is threatening the culture and consequently the identity of each and every society by changing the identity of the local. In this regard, the process of modernization of Iran has started since the Qajar period, implementation and modernization of construction methods, materials and globalized approaches in architectural design led to the development of new architectural styles through the adoption of the rules and principles of western architecture in Qajar

period. Accordingly, the method of construction and hierarchy in an architectural space organization based on the terminology of “privacy” has been ignored (privacy was previously the main concern of design) by the architects of Qajar period. Therefore, buildings developed based on design approaches which did not belong to the architecture of that context. Consequently, the language of architecture changed, newly developed materials have also contributed to the changing the construction style in Qajar period. Overall, as the author will state in this thesis, the identity of traditional Iranian architecture in the transformation of tradition to the modernity could not adopt traditional values of architectural identity in the contemporary period (Figure 1).

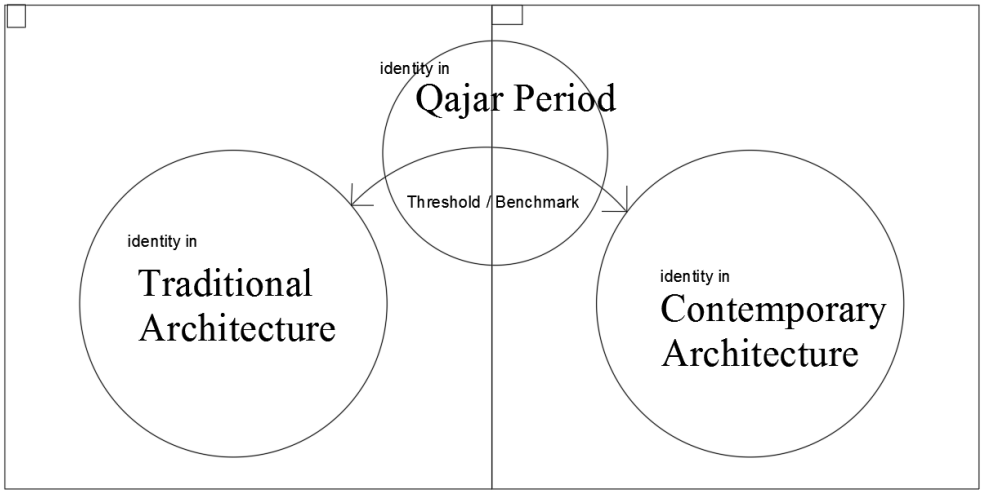

Figure 1. Emerging new identity in transformation period.

1.2 Research questions

By comparing both the tangible and intangible indicators of shaping the identity of traditional Iranian houses (TIH), the study also specified that in transitioning from the traditional construction to the modernity, the physical characteristics of the houses might change considerably. In this regard, the study states that architectural style in Qajar period had major contributions in changing the identity of Iranian

traditional architecture toward modernity". Accordingly, the main research question of this study is "what are the factors shaping the identity of Qajar houses?". The other sub-research questions of this study are:

- What are the factors that shape the identity of architecture in Qajar period?
- What are the main characteristics of Iranian traditional architecture?
- What are the main architectural characteristics of the Qajar houses?

1.3 Aim and objective of research

Regarding the importance of Qajar architecture in the transformation of the meaning of identity, the main aim of the study is to "evaluate the main factors that shape the architectural identity of Qajar houses".

In this regard, this study explores the importance of the compatibility of the term identity of architecture in the transformation age (a period that led to the turning point in the history of Iranian architecture). Based on the above-mentioned main aim of the research, the objectives are as follows:

- To extract the main factors shaping the identity of Iranian traditional architecture.
- To develop a framework for evaluating the architectural identity of the houses of the Qajar period.

1.4 Significance of the research

The newly developed architectural and construction style was the beginning of modernization of the Qajar period in Iran. The lack of study on the architecture of Qajar period reveals the need for the study of the factors that shape the housing identity of this period.

The main contribution of this thesis is to highlight the importance of the Qajar period in the transformation of the meaning of traditional design into the contemporary approach in architecture. In this regard, the study called Qajar period as the transformation period from tradition to contemporary period. The study also develops a comprehensive framework which represents the main elements of shaping identity in Qajar period. It also introduced tools to apply the introduced framework to assess the identity of Qajar houses in the context. In this regard, each architect and urban designers will be able to use the framework and proposed tools to assess the identity of Qajar houses in Tehran, Iran. Overall, since this research is a kind of historical study, the contribution of thesis will also be to introduce the Qajar period as a significant milestone in transformation of the traditional architectural identity in housing design to the contemporary period. The outcome of this thesis will present an opportunity to assess the main characteristics that shape the identity of houses in the Qajar period to fill the lack of related literature.

1.5 Methodology

The methodology developed in this study is mainly qualitative assessment based on content analysis and case studies. Historical analysis has been used to assess as applicable technique on the case studies in Qajar period.

Using qualitative grounded theory based on the content selected from scholarly publications published during the *Qajar* period is considered in order to find out the contribution of contemporary approaches of construction in changing the identity of Iranian traditional architecture. Therefore, due to the essence of the research, historical and documentary investigation play a vital role to assess the subject matter of the thesis. Accordingly, the study proposes an applicable framework to assess and

measure the indicators that shape the identity of architecture (proposed framework) in the Qajar period with a focus on housing. Contextualization of Qajar house in Tehran by considering the methods and material and date of construction has also been considered as a method of clustering qualitative data in this thesis. In this regard, observation of the selected case studies and comparative assessments on Qajar houses in different period have been considered as the methods of data analysis in this thesis. Connectivity analysis and visual Integration analysis have also been applied on the selected Qajar houses from each period (due to the similarity of space organization one house from each period has been selected) to assess the process of changes and alteration in different periods of Qajar house. Overall, the methodology in this qualitative grounded theory study classified into three main parts: a) Discourse and content analysis b) Historical analysis c) Site survey. As a method of presenting the social, political and economic changes in different period of Qajar, Gamma Map have been used to illustrate the factors affecting identity of Qajar houses in different period. As it has been illustrated in Figure 2, discourse and content analysis will refer to the term identity, culture and heritage to find out the main indicators of identity in architecture. In addition, historical analysis assesses the main indicators of shaping identity in traditional Iranian houses to be able to compare the changes in Qajar period. In doing so, as a site survey method, the developed model during the discourse and content analysis will be implemented to assess the identity if Iranian architecture of Qajar houses in Tehran.

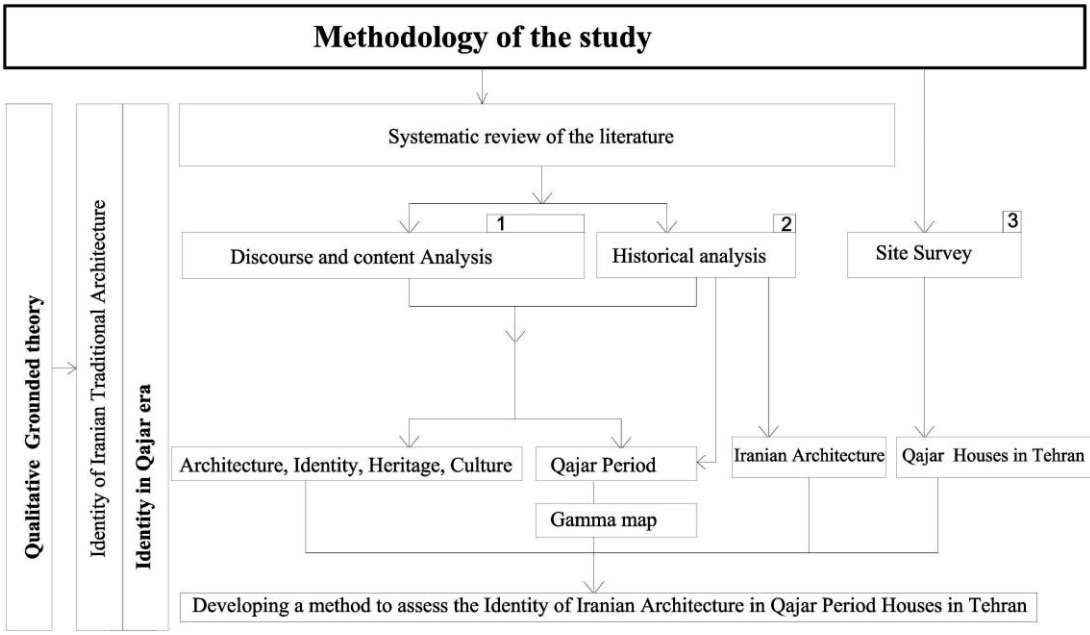

Figure 2. The methodology of the study.

1.6 Limitation of the study

Considering the different dimensions of identity, which are: *Individual identity, Social identity, Cultural identity, and National identity,* (Rapoport, 1980). This study will focus on the cultural dimension of identity. Qajar period as part of the history of Iran has been selected for this study. In order to find the indicators of architectural identity in Qajar period the study will also focus on the traditional Iranian architecture (especially houses) to find out the main factors which shaped the identity of traditional Iranian houses. All the case studies which have been studied in this research have been selected from Cultural Heritage List of Tehran houses. Unfortunately, all the remained houses from Qajar period belongs to the families with high income. Houses from ordinary people due to the uses of mud in construction has completely ruined during the last century. The lifestyle of the people in Qajar period is not also considered, but in chapter 4 it has been explained how social, political and economic changes, new technologies and inventions in Qajar period have been affecting people's lifestyle. Houses of ordinary people in Qajar

period and their changes and transformation to the contemporary period is not considered to be studied in this thesis.

1.7 The structure of the thesis

The content of the study is developed out of the literature in the field of "identity" and elements of shaping identity in Iranian traditional houses. The thesis has been organized into six main chapters. Chapter one, is the main proposal of the research, focuses on the main problems of the discourse, the aim and objectives as well as the methodology and limitations of the research.

In chapter 2 the study will focus on the relation between architecture identity and culture. In this regard, after assessing the definition of identity it will classify the factors of architectural identity into two main parts, which are static and dynamic factors. Accordingly, it will reveal the interrelation between cultural heritage and the term identity in architecture.

Chapter 3 explores the main factors shaping the identity of traditional Iranian houses, spatial organization, relation with privacy, and basic design principles in Iranian traditional architecture which have been classified into two main parts a) tangible understanding of identity b) intangible understanding of identity will also be assessed in this chapter.

Chapter 4, evaluates the Qajar houses in Tehran. In this regard, after explaining geographic and political features of Tehran it will clarify the urban development of modern Tehran, then, it will focused on Qajar period to assess social and political changes, architecture, and households in Qajar period. Accordingly houses in Qajar period have been classified in three main periods in this chapter. Chapter 5 will

propose an integrated framework to evaluate identity of Qajar houses. In this regard, it will assess Internal and external factors Affecting Identity of Qajar period to develop Tools to apply to the proposed framework to assess the identity of traditional Qajar Houses. Finally, chapter 6 will clarify the conclusions which have been found and clarifies during the study.

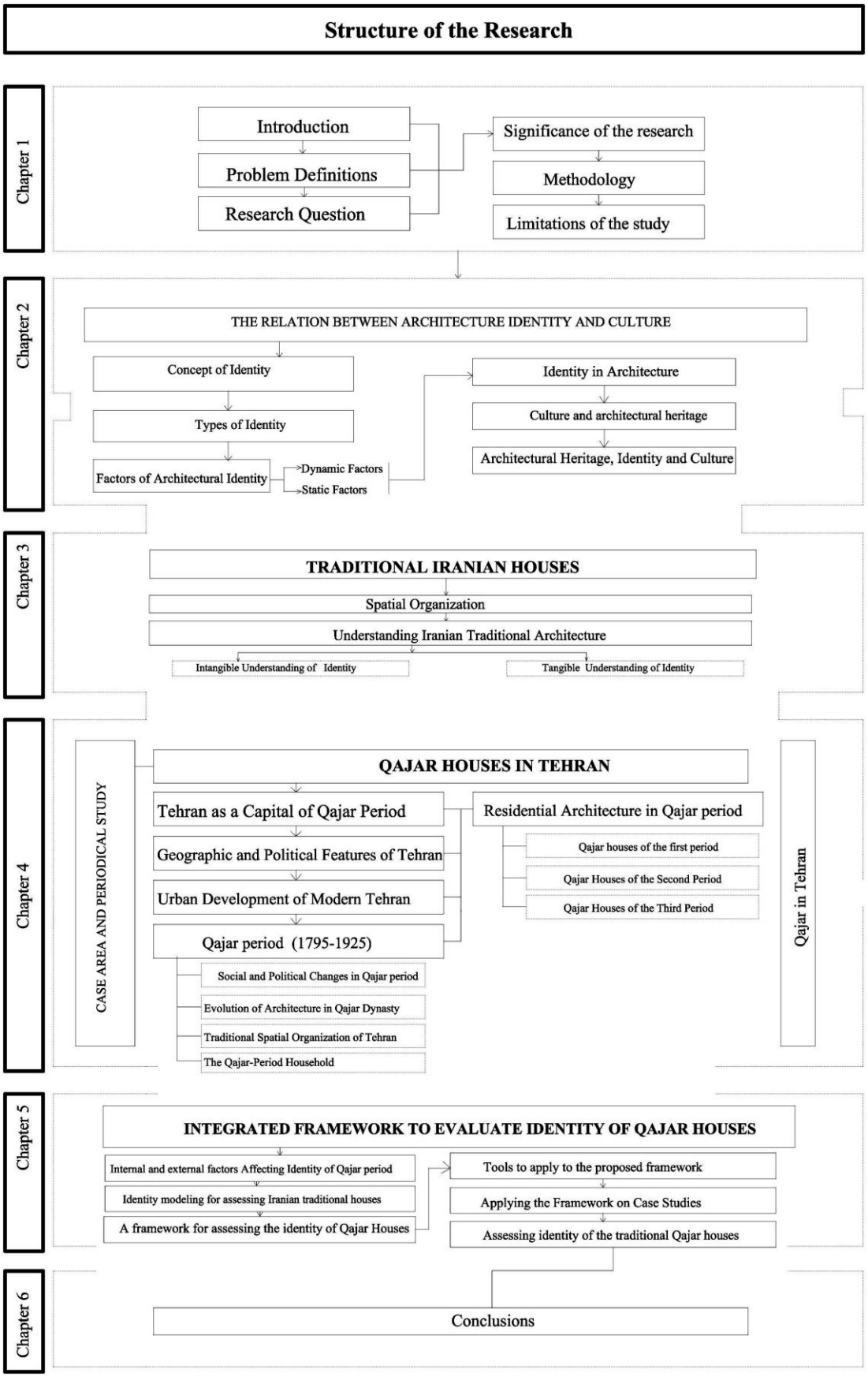

Figure 3. The Structure of the Thesis.

Chapter 2

THE RELATION BETWEEN ARCHITECTURE IDENTITY AND CULTURE

"Culture" refers to sets of rules and principles which represent the lifestyle, beliefs, traditions, and habits of a group, people or society. In this regard, the term culture in architecture denotes the principles of design and construction and the method of spatial organization of architectural spaces (Rapoport, 1980).

By the passing of time, many architectural styles and forms have been reinterpreted to accommodate various cultures. As a result, "…architectural style or type is pure in an absolute sense. Complex architectural styles are agreeable combinations of mainly borrowed elements" (Eloit, 2009). These elements which have been borrowed thought the history, are the cultural elements which have been transformed, lead to shape architectural identity (Irwin and Chemers, 1989).

These sets of principles and rules of construction over time gives special characteristic to the architecture of that context which will be referred to in this study as "*identity in architecture."* The study on the identity of architecture might be considered as a way to explore a culture of a society over a certain period of time (Van Mais, 2004). This chapter by defining the definition of identity and culture will try to stabilize a theoretical framework to explore the identity of architecture.

2.1 Concept of identity

Identity is the basic means of differentiating persons and personalities, one thing from another and nation from nations. Charles Jencks (1970) specified that “identity is the classification and relating of oneself to another thing or another person". According to Hogg and Abrams (1988), the term “Identity” refers to how people perceive themselves to know what class or category they fall into, as well as their behaviour and relationship with other individuals. In this regard, the Persian dictionary known as Dehkhoda (1925) clearly defines identity as a state of “self-esteem”; this same definition is accepted amongst several professional and scholarly articles. “Identity” is the real nature of a thing or an individual who reveals its natural essence (Amid, 1982). Furthermore, Sani (2009:37) advocates that “there is a significant variation in the term identity which includes: nationality, ethnicity, identity in culture, social identity, and personal identity.”

Different nations and peoples have their peculiar identity that makes them unique from others; these expressions are a binding force for them and a platform for unity, uniformity, endurance, integrity, solidarity and non-divisiveness (Herrle and Wegerhoff, 2003).

The concept of identity by considering European narratives is an approach that stems from a constructivist perspective. According to Sassatelli (2006), this means that “the analytical concept of identity has been recently reformulated as something that is multiple, fluid and, above all, constructed. Current approaches tend to shift the emphasis from a check-list of essential elements, drawn from the past that can easily lead to conflict and exclusion to the active process of construction, to its subjects,

their strategies and rhetoric".

Philosophically, the term identity is used to describe the form of manifestation and the kind of physical existence. It can further refer to a group of cultural, physiological, humanistic, material as well as a biological signature that distinguishes each person, sets of individual, community and culture from another (Hall, 1996). Sani (2009) further elaborates on identity, describing it as what brings a sense of belonging, this sense of belonging is a key need in the list of basic human needs, as suggested by American psychologist Abraham Maslow (1970).

Castells (1997) believes that one's identity spreads across individual's dreams, and their religious insights, plus it has a turnaround effect on how they deal with their failures and successes.

An intelligent solution regarding identity has also been proposed by Rapoport (1982). The term identity has also been categorized into private and public and the need to make a clear distinction between them both, has been emphasized as well (Van Mais, 2004). A) ***-Private identity***: refers to a means of strengthening the identity of one's self and the immediate household, and the individuals who can achieve success through their insight and knowledge. B) ***-Public identity***: Rappaport (1982) believes that the signs that means portrays must be obvious and easy to identify. In this regard, public identity is referee to the collective memory of a society. Some specific landmarks which might be in a neighbourhood or country scale will convert to public identity throughout the time.

Table 1. Two different approaches to the definition of identity- by considering both human and architectural identity (Rappaport, 1982).

Private identity	Public identity
-Only individuals can recognize	Having an intragroup identity/ general identity
-Through their insight and knowledge.	-It is related to the collective memory of a society.

2.2 Types of identity

From an ontological point of view, the term identity might have a different understanding. It might describe the characteristic of a person, or a group, a nation, or even an art object. In this regard, the study on the types of identity revealed that there are four main groups (individual, social, cultural, national) which this study will explain briefly their meanings and characeristics.

2.2.1 Individual identity

Individual identity gives a description of the character of a person focusing on the fact that as a result of the unique personality of identity the issue of time in every individual possessing various experiences from the environment they were raised in. This is indicative of the fact that identity is peculiar to each person based on their different environment (Bauman, 2004; Wendt, 1994).

Figure 4 illustrates the main indicators of personal identity. As it can be seen, there are many indicators which results effects on the individual's identity. Differences on people's belief with each other and differences on human tastes, emotions, goals, dreams, values, habits, personality, physical features and interests lead to conclude that each and every person might have specific identity which distinguish him/herself with the other people (Butler, 2006).

Figure 4. Indicators of individual identity (Butler, 2006).

2.2.2 Social identity

"Social identity is a person's sense of who they are based on their group membership" (Tajfel, 1981). In this regard, social identity refers to the knowledge of an individual of the social class in which they fall into. A social group is made up of a number of individuals sharing the same social identity and the same weight of responsibility in compare to the other members of the group (Ellemers, N. Spears, R. & Doosje, 1997). The major focus is on the opposition that exists between groups for a status of prestige, as well as the function for personal enhancement by using social and positive identity. In this regard, social identity indicates to an extent the collective identity that has a relationship and experience, historical knowledge as well as memories people can get as time goes by (Shayan, 2011).

2.2.3 Cultural identity

Cultural identity is a sensation of belonging to a group. It is part of a person's self-perception and is related to nationality, generation, locality, ethnicity, religion, social class, or any kind of social group that has its own distinct culture (Ibrahim, 1999).

Cultural identity refers to the interaction and the interpretation of the behavior of people with each other. Thus, works based on anthropology becomes not easy because of the fact that it has to look for a precise process through which all components of a particular cultural group unify, integrate and oppose each other. It is a proven fact that people can preserve and sustain culture over time, thus human beings preserve cultural identity (Ibrahim, 1999). Another perception of cultural identity is the conscious awareness of one's own group and uniqueness of others, in ways such as language variation, the pattern of life, customs, and values. In this regard, being part of a group makes people feel a sense of belonging to that cultural frame, and they also obtain a sense of security from it" (Houshangi, 2013).

2.2.4 National identity

National identity refers to a class of people that possess identification with a country's symbol as well as project the nation's image (Bloom, 1990). "National identity is shaped and formed basically by legends and environments, lasting tales, events of heroes told by stories and special ages." National identity is "a pride" that each nation portrays globally (Sindic, 2011). This form of identity is one that is usually built over a period, and is indicative of the nation's growth economically, technologically and sociologically (Yale, 1992). Overall, Figure 5 reveals different approaches in the understanding of identity.

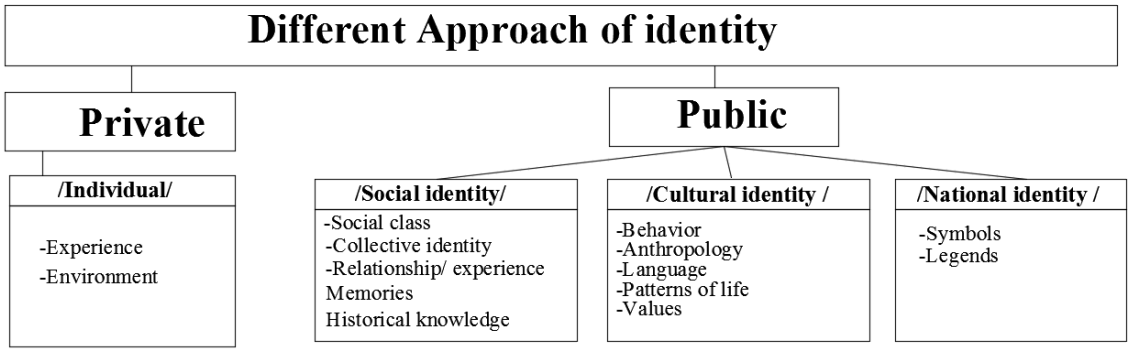

Figure 5. Different Approaches in Classification of identity (Rapoport, 1980; Yale, 1992; Van Mais; 2004).

2.3 Components of architectural identity

The factors of architectural identity are specific, continuing thought, embedded in the citizen's ontology which form the identity of architectural over time in the various nations of the world. Architectural identity is said to fundamentally be formed through creative planning and systematic actions.

Traditional architecture which is known as "housing without architects" transforms its architectural identity as sets of principles known as a culture. Culture of a society dictated its principles of architectural construction based on geographical, social and political factors. As Alexander (2005) mentioned, this principal of architectural construction which have been developed through the time known as pattern language. Alexander (1970) in his book with the title of "A Pattern Language: Towns, Buildings, Construction" stated that the identity has the same meaning with culture. He stated that in every context, there are some languages and principles of construction that he named as "pattern language." The patterns that Alexander mentioned in his book has already known as culture and in a long run representing architectural identity of a specific society.

Considering the Maslow's hierarchy, the term "identity in architecture" might be interpreted as a way of designing in accordance with the user's requirements, with the aim of satisfying their physical and emotional needs. Furthermore, when an architectural object provides a sense of meaning for its user, it referees to as identity in architecture. From the other hand the term individual identity in architecture, especially in housing refers to as the privacy in space organization. Consequently, the term identity in this thesis considered as an amalgamation of both public and individual identities (Lehmann, 2008).

Considering the term "architecture" the term national identity might refer to a historical or even recently constructed building or art object which representing a culture and/or even economic power of a society (Abel, 2000). Through the history, architecture of public building represents itself as national identity of a specific society. On this matter, to be able to represent their own national identity, governments have always been trying to build their own masterpieces as influential as they can (Lehmann, 2008). The blending of ideas and acting on those principles basically forms the basis of architectural identity.

As it will be explained in the following paragraphs there is a possibility of classifying the main aspects of architectural identity based on the literature (Wendt, 1994; Massey, 1995; Hans, 1962; Tuan, 1967; Gruter,2004) into seven main parts which are: 1) Spatial organization, 2) Temporal organization, 3) Semantic relationship, 4) General design principles, 5) Form and shape, 6) Construction materials and 7) Relation with Context (See section 5.6). Torabi and Brahman, (2013) made this more elaborated. This section of the research will attempt to grant solution to the question of finding what the idea of identity is. Finding a solution to

such question requires giving an illustrative description of identity as well as the components that govern architectural identity. Thus, this thesis would focus on describing the idea of identity and considering its multifaceted nature. Constant and variable components of identity refer to static and dynamic components. (Figure 6).

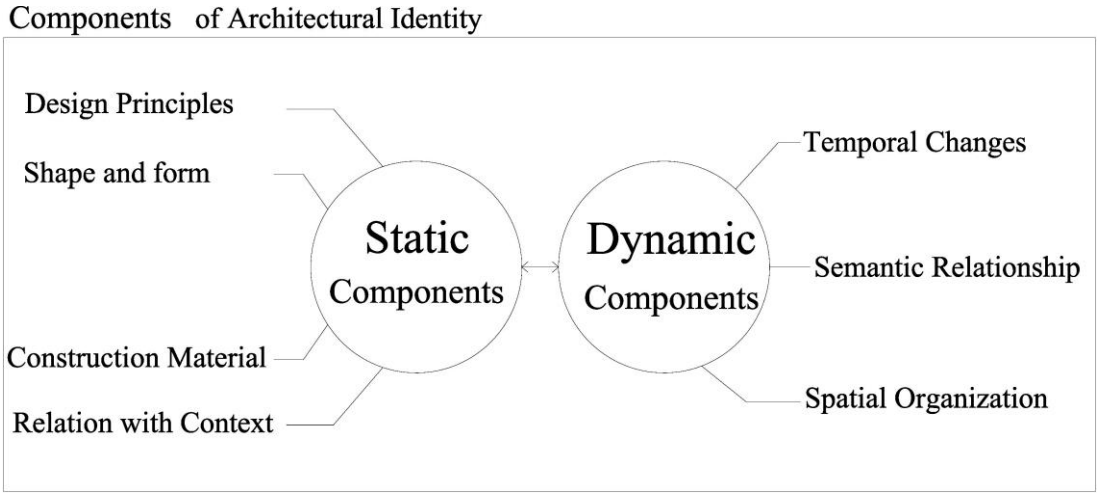

Figure 6. Components of shaping identity of architecture.

2.3.1 Dynamic components

As it is revealed previously, the term dynamic aspect of identity refers to the adaptability of identity by considering the time. Meaning that as the time passes, due to social, political, economic effects of context, the term identity might as well change along with time. Following the same idea, it will explain in this section that semantic relationship of identity is also dependent on the concept of time (Lawrence, 1992). Meaning that as time passes, the aesthetic understanding of identity might be changed (Krier, 1979). Organization of space is also another factor that affects the shaping of identity in architecture. It refers to the space organization based on human taste and human needs which might change over time. The following paragraphs will explain the dynamic factors shaping identity in architecture, in details.

2.3.1.1 Temporal changes

The way that time is perceived in various cultures is different. Meaning that people exist in time and space. Each and every architectural object that recalls its identity preserves the architecture of its time, including the physical, cultural and social identity (Wendt, 1994). In addition, the natural environment has constantly undergone changes as a result of both natural and man-made factors of climate change. Also, as the time passes, techniques of construction changes and somehow, these changes also cause social and environmental changes. Thus, the magnitude of change that occurs at a certain time should be in a way that it does not erode the architectural identity of that place (Massey, 1995). The physical transformation of an environment usually brings about severe changes to the socially and culturally sphere. Ergo, when physical changes occur, social and cultural changes should also be taken in consideration, or else they might be lost. When this occurs, it can lead to serious confusion and the inability to adjust to the changing environment (Gruter, 2004) (Figure 7).

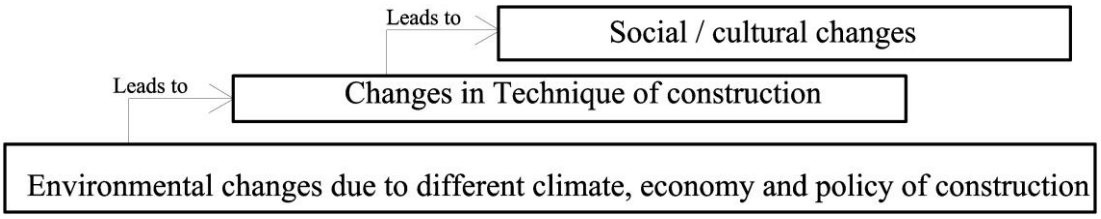

Figure 7. Temporal changes and the process of changing identity of environment.

2.3.1.2 Semantic relationship

Each and every *architectural object* has their unique symbol of cultural identity which represents the culture of its original context. The experience in each and every environment is indicative of the people's ideas and this portrays a certain expression

that gives the environment or the architectural object its symbolic identity. According to Hans (1962) architecture is "a supernatural expression that is contained in building structures." Hans further states that, a building performs more than just being a functional space. Clear dimension is revealed through architectural monuments, decoration, shapes, size, as well as other physiological expressions. Different material all possesses different features that express semantic meaning in different cultures. For example, in Japanese culture marble is a material that represents wealth, solidity, and durability (Tuan, 1977). Wood is natural and warm and provides values that are wholly inconsistent with those of marble (Gruter, 2004). The idea also can be interpreted in architecture based on the symbols which might have developed based on their history and culture. Meaning that semantic identity of architecture might have different identity throughout different timelines. The architectural symbols which have developed through time are one of the main concerns of this thesis.

2.3.1.3 Spatial Organization

To gain clear understanding of space organization, the idea behind space must be clearly understood. According to Aristotle, space is like a vessel (Aristotle, 1983). Aristotle sees space as a vessel that could be filled and covered with content for existence; hence space has limitations (Dessoir, 1925). Space is naturally without defining boundaries and only gains form from the shape of the objects it is made of. Spatial organization brings spaces together seamlessly and helps achieve the required space for the function needed. The order, pattern, hierarchy and position of the spaces are determined using spatial organization. Variation in the kind of arrangement can cause a variation in semantic relationships between spaces. This semantic relationship and spatial organization are diverse in different cultures and

applications. Using spatial concepts like passage, vacuum and other concepts in the architecture of each culture can be the key to constructing an identity oriented building (Georgiou, 2006). An architect can specially design an aesthetically valuable architectural space by considering here main classification of "spatial organization" which are the amalgamation of both factors of objectivity and subjectivity.

2.3.1.3.1 Public, Semi-Public and Private Spaces

In order to get a good understanding of the nature of homogeneity of the Iranian courtyard, a thorough analysis of the characteristics of the spaces and elements that surround it, must be done. It should be observed that around the spaces of traditional buildings, there exists an interdependent relationship between the elements that tends towards the creation of a homogeneous and continuing relationship between the different levels and layers surrounding the houses. The continuing flow and interconnection is the product of a linking system that exist between three space organization that includes; Public, Semi-Public and Private Space (Hutt, 1987).

The idea of distinguishing spaces according to their degree of privacy is very common for architecture (Riley, 1999). Separating spaces based on public, semi-open and private designations informs the design by grouping spaces with similar demands.in this regard, defining levels of desired privacy can be different in each and every culture (Witte, 2003). In this regard, Witte in his book define public spaces as unrestricted communication. This definition in case of house can be consider as a courtyard for a house which there is no any specific boundary to control privacy and it is visible from different side of a house (Robinson, 2001). Semi-open spaces or in-between spaces refers to the spaces that connects public spaces to private spaces. In

the case of Iranian traditional houses porch and platform can be consider as semi open spaces. Private spaces reference to a place that respects human desires and people can safe from emotional point of view (Altman, 1975). Overall, Public space is defined as the space that applies no restriction to communication, whereas a private space is the one that completely constrains communication such as rooms of a house.

Here in this sequence of space, for instance, the open areas are courtyards, semi close areas include entrance port and enclosed space includes *cedar* and *panjdari*, cooking space**.** It is observed that homogeneous elements of the courtyard are created in a continuing interaction in the spatial progression that are open and enclosed, and this oneness forms connecting integral spaces. Around the home, open, semi-closed and private sequence frequently extend their uses to other layers and pattern of every design space develops a true feeling of graduation of space and warmth amongst the people. In Iran's traditional houses, moving along one internal area to the other is generally being experienced again and again without encountering any obstruction, because the house is connected in a continuous manner (Stierlin, 1982). Architects in Iran have endeavored to move the male from a free space as stated by Ardalan & Bakhtiar, (2001). In Iranian traditional architecture, the male constantly moves on in a large and wavy space that is constantly unique. Indeed, open, semi-closed and private spaces possess two purposes, i.e. they are involved in the creating processes and are as well a result of the same processes (Balilan et all., 2011).

The continuing relationship between the courtyard and the other section of the house experiences no disruption, and the spatial goes on and on. In another sense, the connection between the areas in the traditional houses, from a tiny hole to give

access, is being transformed into an opening, thus, leading to a functional transparency in between the space (Memarian, 2010).

Several components of the Iranian traditional architecture converge in a two-way and continuing relationship in the construction of an integrated whole. Thus, basically, the vital factor in a traditional home in regard to the semantic-functional participation is the relationship between the parts rather than the nature or wholeness of components. This is due to the fact that the relation among the forms and building elements in a comprehensive system is unique from the essence of different parts and is achieved by their reciprocal relationship. In these regards, it can be said that in spatial structures, the finality in the equation of the components, is not only as a result of the adjacency and the closeness of the surround components, but also resulting from the spatial organization (Hillier & Hanson, 1982).

In order to elaborate on the intimacy of space, a famous architect in Iran known as Nader Ardalan used "*spatial connectivity*" to reveal the connectivity that is found within the spatial components of the traditional architecture of Iran, and agrees with the fact that space connection in the architecture of Iran give the primary semantic pattern of relationship, how it's been transmitted and received (Ardalan & Bakhtiar, 2005). Considering the aforementioned principles of *housing typology* in Iran, it can be seen that the courtyards as an outside space, have transformed into a homogeneous and non-cross connectivity, though the use of semi open and enclosed proximity being linked continuously. By connecting the open, semi closed and private areas, the relationship has brought almost a unique space integration into the entire space system of traditional Iranian homes (Amiriparyan and Kiani, 2015).

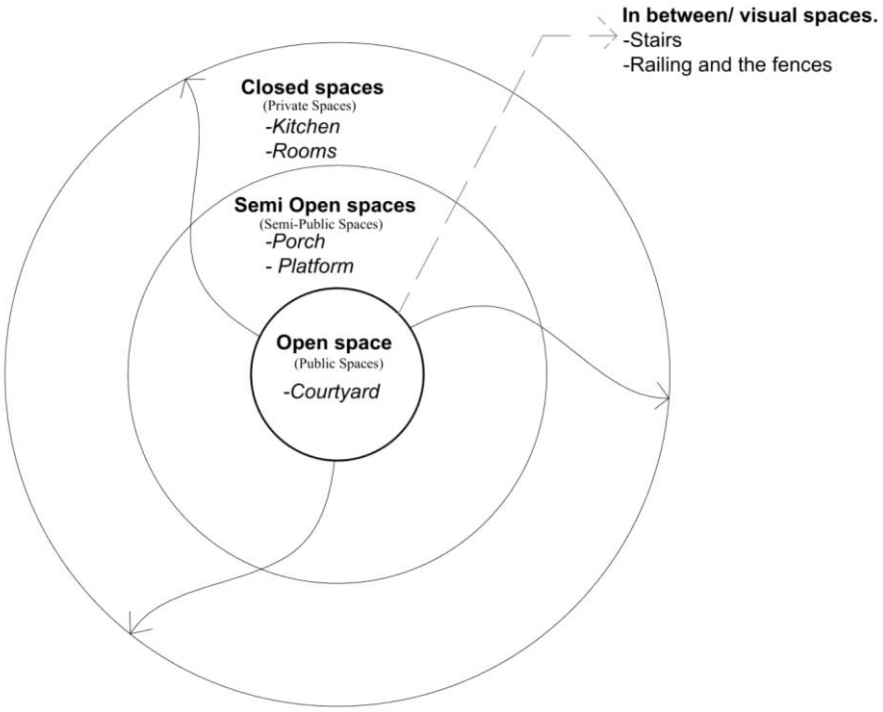

Figure 8. Spatial continuity between various spaces.

As mentioned, the courtyard is a portion of the building that came into existence by a reciprocal connection with its surrounding environments, and as an open component is a homogenous hierarchical system of the building, this vacuumed space that is located at the core of the building functions as the heart of the building. Furthermore, this central core acts as a structural center for the field of force (Alexander, 2011).

Hence, in the structuring of space within the building, the courtyard serves the function of a spatial square, bringing about a gravitational relationship within the area. In the traditional houses of Iran, boundaries within the building have often served as a connection and are of the type of physical borders. These boundaries possess distinct virtual and semantic characteristics that do not possess absolute ends; in other words, it is third space, having the flexibility or a mild threshold. This

flexible and soft threshold serves in between two similar and non-similar movement architectural space, and by making available a framework that has flexibility, leading to a combination, demarcation and fluidity of space (Balilan, et all, 2011). Alongside determining and directing the personal environment, the threshold has the job of collecting and interpreting of information, and further serves in connecting and separating means as well as transient space in the spatial arrangement of the building.

By undefined thresholds, the space realm of the courtyard transcends into other areas of the building such as the porch, thus the courtyard becomes partly engulfed by other functions. This interrelationship is reflected in other areas of the house as well, including the private rooms and its continuous this transition down to the courtyard while still maintaining its homogeneity.

2.3.2 Static components

Static factors shaping the identity of architecture refers to the factors which might have been designed in such a way that as time passes, they don't have any effect on the overall understanding of architecture. It means that, static understanding of architecture refers mostly to tangible part of architecture and their spatial organization in such a way that people can perceive it. General design principles shape the identity of architecture, the overall form and shape of a building, the buildings relation with the context and its constructed materials are the four most significant subjects which the study considered as static factors in shaping the identity of architecture.

2.3.2.1 General design principles

The conceptual composition of an architectural work that forms the point of convergence throughout the design process is known as the *general design principles*. General design principles refer to unwritten principles of construction

which have been developed through time (Pirnia, 2006). On this matter, all the principles of construction have been used in such a way as to shape architectural identity. *General design principles of construction* have been developed throughout time, meaning that as time passes architects or craftsmen have been able to developed their methods of construction based on try and fail process in designing and construction. General Design Principles could be classified in two main classifications which are: Concept oriented and context oriented. Traditionally, design principle of construction, mostly obeys the principles which dictate from the context. General design principles as a Concept oriented refers to the architects design in the overall organization of the shape and form of the building.

2.3.2.2 Regular-irregular form and form oriented architecture

Every imaginative product of architecture is realized in a form. In this regard, culture introduce general design principles in architecture due to difference in social, political, climate, and geographical materials. This difference in general design principles will leads to shape the regular or irregular architectural form and also they can lead to form oriented architecture. The physical image of anything is the first and most important feeling the object or structure transmits to its viewers (Falamaki, 2006). A definite object with shape must be proportional, sizable and most possess certain level unity (Soltani, 2010). Overall, a community's identity and cultural concepts are determined by the buildings embedded which each other which shapes the overall form of the buildings.

2.3.2.3 Building materials

A key way of understanding a spatial environment is through the materials used in creating the space. According to Gruter (2004), "each material possesses its peculiar property." "Building materials" has been an essential part of architectural. In

traditional houses, form of a structure has been symbolized by the type of material used. The type of material selected infers a form to the structure. It often brings the concept of the design of the structure and hence the concept of "building materials" represents the importance of durability, visual quality and generally the identity of a building (Mishra, 2004). Thus, construction materials go far beyond being used as aesthetic elements, they induce concept and impart meaning. Adolf Lossi (1982) believes that original and fine materials replace surface and form a better alternative that has more intrinsic value. Materials in construction of a building might be contemporary or vernacular. If the aim of the design was to introduce a traditional face of a culture in a building, it might be introduced by traditional materials or vice versa. Vernacular materials also represent their own identity of a specific art object or building. Overall, it can be concluded that the availability of vernacular materials and its differences in different geographical conditions and its construction methods (which might vary depending on their knowledge of construction, culture, religion and available building materials) will lead to shape the identity of architecture.

2.3.2.4 Relation to context

There is a subtle interaction that exists between the environment and the built environment. The existence of this relationship provides a good understanding of environment. Each element gains meaning from its environment. For instance, if Persepolis (in Iran) is moved from where it is today in a different context, it completely loses its meaning and stands alienated from its original context. This is to show how the environment is fundamental in understanding the architectural space. Therefore, architects should design by paying attention to the context where the building is going to be constructed. This enables the building fit contextually into the environment. In this case, the changes in the context of the environment are minimal,

and in a way that the changes do not significantly distort the surrounding environmental power when the architectural space is built. Climate, topography and vernacular materials are other factors that should be considered in contextual design (Alexander, 1970). The term contextual design refers to the sustainable interrelation between the elements of the built environment that gives a kind of harmony and accords a specific identity to the context. Overall, the Figure 9 clarifies the seven key factors shaping the identity of architecture.

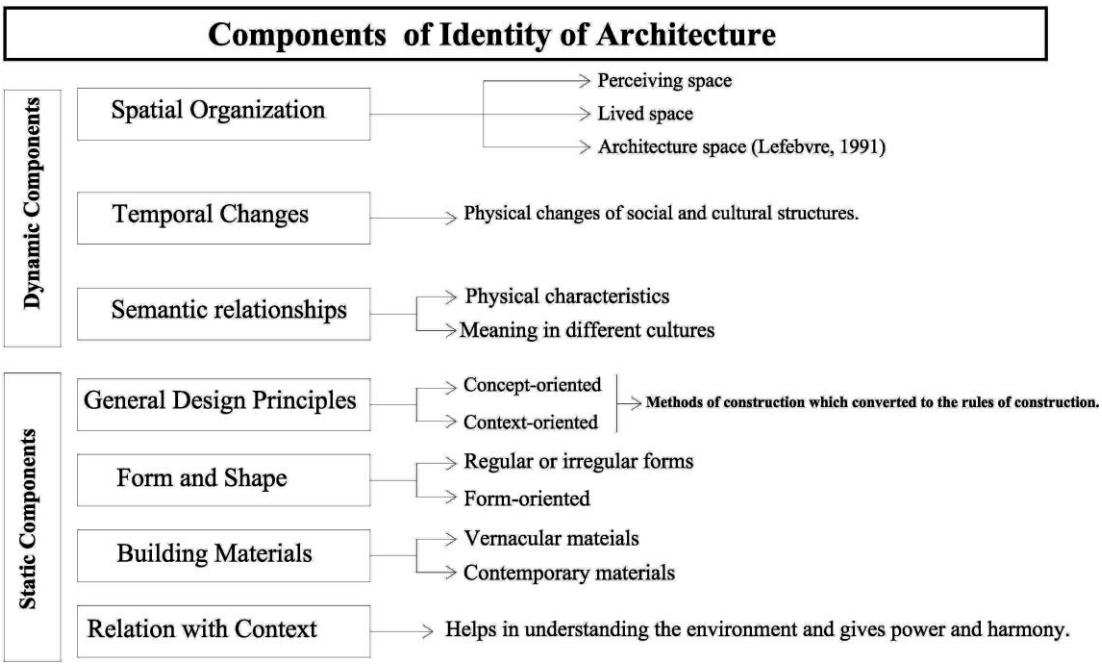

Figure 9. Main components of identity of architecture.

As it has been illustrated in Figure 9, the main factors in shaping architectural identity might be classified into two main parts:

A) Dynamic components: Dynamic factors in shaping architectural identity have a direct interrelation with the time. Meaning that by the time passes, the components of shaping architectural identity will change. This study has been classified the dynamic components of shaping architectural identity into three main parts which are: 1)

spatial organization: According to Lefebvre (1991), dynamic components of spatial organization can be assess based on perceiving spaces, lived spaces and conceived spaces (architectural spaces). Next to Conceived space Lefebvre distinguishes lived space and perceived space as well. Henri Lefebvre's notion of conceived space comes out of his book 'The Production of Space'. Lefebvre claimed that the production of space had been central in Capitalist development, rather than history (Hubbard, Kitchin, & Valentine, 2009:270). Conceived space can be taken as space without life or abstracted space (Gronlund, 1993). The conceived space is the space of urbanists, architects and scientists. It is the dominant space within a society. 'Every society produces its own space according to its mode of production' (Baltazar & Kapp, 2010 & Gregory et al., 2009: 698). "A conceived space is a place for the practices of social and political power; in essence, it is these spaces that are designed to manipulate those who exist within them" (Lefebvre, 1991: 222).

Perceived space is similar to the terms; physical space, abstract space, surfaces, materialism and visual. It is also the same as the spatial term 'spatial practice', from Lefebvre as well. Spatial practice holds the collection of spatial sets characteristic on a particular location in a society. In the production of social space, it is the fundamental movement. The experience in the perceived space will be mediated through the conceived space expectations into the lived space. The three spaces have a high degree of cohesion. (Lefebvre, 1991).

Lefebre speaks of (lived) space being crucial for things in life to function well to all levels. (Lefebvre, 1991) Some difficulties we have to deal with in live is that our society has lost its way: certain lights denied. Our lived experience and space is so-called holistic build, but we need clear lights upon them to see clear. (Lefebvre

1991). Some key solutions of creating a successful build society rests on education, maybe in different alternative settings like public communication. *2*) *Temporal change* (which considered as physical changes of social and cultural), *and 3) Semantic relationships* which might have different meaning by physical changes and its interpretation of meaning thought time in every context.

B) Static components: Static components in shaping architectural identity refers to the objective elements and their composition in architectural construction. The notion of time does not effect on static factor of shaping architectural identity. These factors have been classified into four main parts in this thesis which are: General design principles (which might be context oriented or concept oriented design), form and shape, building materials (which might be vernacular or modern globalized materials) and relationship with the context which strength functionality of space and gives harmony to it.

2.4 Identity in architecture

According to Dar & Dryalal (2010) the interrelation between culture, identity and architecture as a part of the relationship between human-made environment and people is a situation that environmentalists must confront. The architecture of a place is a testimony of the identity of the environment, as it carries it along with the characteristics of where it originated from. Therefore, factors such as patterns, cultural value, physical environment, understanding and knowledge of the context are indicative of the origin of a style. In this regard, it can be clearly stated that the layout and architecture of a place, the general arrangement of buildings, as well as their inside and outside elevations are all part of the expression and civilization of a country or people (Ghotbi, 2008). Concepts used and effects that result from certain

elements in a culture, gives definition to the architecture of an area. In this regard, certain factors that include; aesthetics, insight, and originality are essential ingredients that contribute to generate a genuine and meaningful architectural identity (Armstrong, 1955).

The term identity in architecture refers to the language and the process of construction which represents the history and culture of a society (Rapoport, 1980). As time passes by, the language of construction transforms due to social, political and economic changes, this process tend to ascribe a new meaning to "identity in architecture." As it is illustrated in Figure 10 climate and geography, history, people's understanding and social behaviors, knowledge and manners based on their tradition, design principles are the most important factors which convey the identity of architecture. Figure 10 also reveals that the features of built environment convey a message for its architects to design an art object with identity.

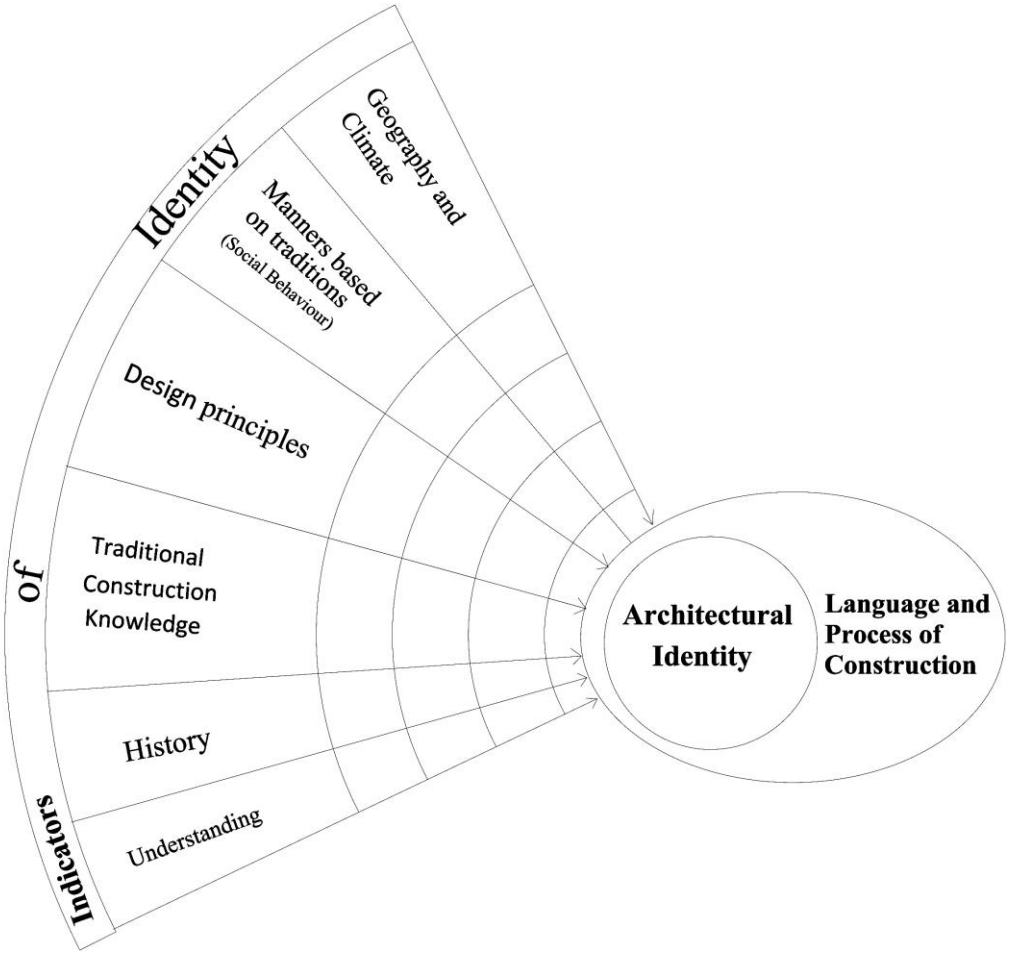

Figure 10. Indicators of identity in architecture.

2.4.1 Identity of place

Norberg-Schulz's (1971) made the word “place” became significantly recognized in architectural research, planning and in geography. His research on the existence of a "Genius Loci" refers to the *spirit of a place*, Tuan (1977) divided between "sense of place" and "rootedness," where the sense of place was defined as a consciousness of a positive feeling of a place, and rootedness as a feeling of being home. Notwithstanding, there has arisen the necessity for a more general terminology for the physiological surrounding that relates to social, psychological and cultural meanings attached to it. The word “place” is almost irreplaceable. According to the Christian Norberg-Schulz (2003) “the identity of people cannot be separated from place identity. They both go hand in hand and support each other in all

ramifications". According to Sime (1986) "a primary function of 'place' is to engender a sense of belonging and identity".

Place making can be achieved in several ways, and interpreting it is somewhat intangible. This also provides an avenue to establish our connection to the world truly. A different means of defining place is through interaction. As previously mentioned, Norberg-Shulz suggests that "our identity is linked to the places we inhabit, and in the context of interaction …as togetherness is a basic existential structure, a place is always something we share with others" (Norberg-Schulz, 1988). A place by itself does not possess an inherent nature. The identity of a place is inductive, it occurs as people interact with the environment through their daily activities, jobs and living patterns, special events. Therefore, once these patterns of activities are maintained, they form the meaning and identity of the place. Lynch, states that "monuments, roads, communities, residential structures, religious buildings and parks are all material things, and all have a sense of symbolism through which they induce meaning and identity into the environment where they are situated." (Lynch, 1972 in Osborne, 2001).

In certain areas, narrative poetry is used to define the identity of the place story of a community and this may be a way that individual defines their story of they came into existence. These cases often are associated with the specific places that their histories produced cultural meaning (Massey, 1995 in Osborne, 2001). Overall, humans can identify themselves by the built environment. Buildings are a part of a larger whole found within an urban context that help people to trace their identity and so know who they are. Accordingly, via the built-form individuals try to create a specific identity and memory. The identity and memory of groups like architecture

are rarely static and are changed when built-forms are lost by destruction (Houshangi, 2013). Therefore, rebuilding or replacing the buildings may lead to a continuation of one's memory and identity or may lead to extinguishing them. So, both processes of destructing and rebuilding are essential in the cycle. The built environment plays an important role in creating identity and memory in humans.

According to Schroeder (1991) "place attachment develops based a person's individual memory of a place" Overall, as described in Figure 11, place attachment and place identity are two sides of the same coin, meaning that place attachment might lead to place identity or vice versa.

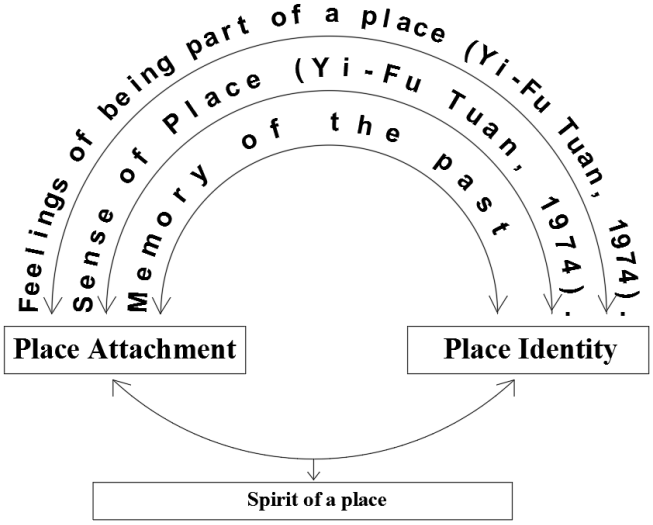

Figure 11. The interrelation between place attachment and place identity.

In creating a sense of place, the sense memory of qualified designer must also consider the environment. Proshansky (1983) reveals that individual identity derived from spatial perception, cognition, emotion, and finally to the place the person knows. He emphasized that place identity and location as a platform, operates as an important link in the relationship between man and the environment. The role of physical factors as part of the social elements in the environment are emphasized and

based on this, the most important factor is a close interaction with their environment as part of the identity of the intangible and individual structural elements. Schultz based on the nature and location of the structure to describe and analyze the setting and atmosphere are referred to as the spirit of place and sense of place refers to the essence of communication. Relph in his book “place and placelessness” (1979), claimed three-dimensional factors of place identity. In his view, physical characteristics, activities and meaning, form the main component of identity. He noted that a sense of place influences, the place identity and the other, his phenomenological approach is very holistic. Physical features, the most visible aspect of his division, while other features such as ugliness, the beauty, workability are very intangible. Relph expressed the perception associated with the experience of place, believing that the human sense of place concept beyond physical characteristics and structural elements in the same location as perceived by and in a sense continuity and continuous communication with the spirit of the place makes sense. He expressed this basic relationship and sense of place of integral human aspects is pointed out and announces what a space will a place advancement, being imbued with deep meanings that can be spread over time. Hence the desired location in the defined meanings over time and with the hindsight Relph result is obtained. Relph (1979), fittingly summarizes this in his proposal that “identity of place is comprised of three interrelated components, each irreducible to the other - physical features or appearance, observable activities and functions, and meaning or symbols”

Overall, “place identity” is related to the distinctiveness of our living world, and human experiences are inextricably interwoven with place, meaning and is significant for people by considering the symbols, images, and meanings associated with places.

2.4.2 Identity of house

The house is a place that is at least geographically stable; "one's home is where in the world, one most truly belongs" (Matthews, 2000). This dwelling or residence always involves different levels of choice, in terms of location, neighborhood, cost, size, typology, image, it is also part of our identity - whether that identity is professional, class, social, ethnic, cultural or, in particular places, racial. The location and dwelling where we live is one (important) way of how we either choose to, or are seen to, represent ourselves to others (King, 2004). Simon Anholt describes how, as the secure foundation of our identity of place, home is the bedrock of all other geographic identities: "The identity and image of the places we inhabit are really a seamless extension of the identity and image of ourselves; it is a natural human tendency for people to identify themselves with their city, region or country. Our sense of self isn't bounded by our own bodies: it extends out into family, neighborhood, district, region, nation, continent, and ultimately to the human race" (Anholt, 2010).

The tremendous significance of the places we call house makes any challenge to the security or stability of place identity particularly critical. Several researchers have investigated the expression of personal and social identity in the house. Rapoport (1969) documented instances in which house form and location represented social status and group membership. Duncan (1981) examined the relationship between the social structure and the attitudes towards housing. Cooper (1974) stated that the house is a symbol of its residents. Hummon (1989) emphasized how cultural processes mediate the relation of housing and identity by analyzing the ways that houses become signs in communicating identity in modern American society. Apart from that, the philosophical interpretation of the concept of identity in housing

environment was discussed by several scholars. For example, Hirsch (1982) related the concept of identity to the continuity over time. Heidegger (1960) argues that identity appears in the character of unity. Hume (1967) related the concept of identity to the notion of duration and he laid emphasis on the importance of memory as a source to discover and produce identity.

One of the most important objects that people are used to express their identity is the house. In fact, the house is an important part of the communicative system through which people exchange information about status as well as about values and meanings. As Duncan (1981) notes that the house, it is argued, is an extremely important aspect of the built environment, embodying not only personal meanings, but expressing and maintaining the ideology of prevailing social orders (Duncan, 1981: 41).

People usually personalize their house through the building itself, as well as through the landscape in which it is set and the furniture it contains as a means of expressing their distinctiveness (Senan, 1993). Through these elements, messages are communicated about the inhabitants' values and culture. In other words, the materials people use in the house, the furniture they install, the pictures they hang, the plants they tend are all messages about themselves that they want to convey back to themselves or to others (Senan, 1993). The meaning of the objects is also important. In fact, objects always have specific meaning to certain people. Csikszentmihalyi and Haton (1981) stated that meaning is an interaction between people and things. They argue that the things people do are not simply tools for survival. Rather things embody goals, make skills and shape the identity of their users. On this understanding, the organization of space could be considered as an organization of

meanings. Accordingly, meanings are considered to form a system of non-verbal communication in the built environment, which provide clues and messages about the place and its rules for use (Rapoport, 1982).

Information that has been accumulated over time can be used to develop the lives of people. Most of the researches carried out in housing studies have mainly focused on designing of the houses and cities that could help better the health and wellness of people and help them make the most out of their day to day life (Lawrence, 1987, 2002; Halpern, 1995). Overall, it can state that respecting identity in architecture creates meaningful places by representing characteristic, ideology and culture of a society. Architecture with its different methods of construction can develop an authentic environment which is the main prerequisite in understanding identity of architecture. The term identity in housing is also interrelated with individual identity in such a way that people can feel and understand their presence in the house.

2.5 Culture and architectural

Cultural values are essential in every aspect of our life. It shapes our lifestyles (Neilson, 1941). Cultural values not only shape our environment, but also shape the way we perceive the environment. "Culture" originates from the term "cultivation," implying that one has "grown" through knowledge or experience (Haeri, 2010). The *Encyclopaedia of Philosophy* defined culture as "The whole way of life, material, intellectual, and spiritual, of a given society"(Kooy, 2009). Similarly, *Webster's New International Dictionary* defines culture as "the complex of distinctive attainments, beliefs, traditions the background of a racial, religious, or social group" (Neilson, 1941). Many factors affect to shape the culture of a specific context or society. People’s beliefs, their knowledge, education, costumes, wisdom, values and their

needs, distinctive attainments, traditions and background are the most important which can be considered as the main indicators of architectural identity.

In general, architecture is a way to represent the culture of a society. Every society might have different requirements and different understanding of space based on their own history and background and methods of living that will lead to having different architecture.

2.5.1 Aspects of culture

Since certain aspects of the cultural system may be insignificant to the development of the whole system according to Bohm's theory, it is possible to limit the scope of the cultural system for review in relation to architecture. Sociologists and anthropologists have described several aspects of culture that are significant for the understanding of cultures, including conditions for growth, analysis of language, and universal values which bridge cultural boundaries (Kenney, 1994:6).

Eliot described three conditions he felt were essential for the survival and growth of a culture. These conditions include 1) organic structure, 2) geographic analysability, 3) balance in religion (Eliot, 1999). The first condition, "organic structure," refers to the "hereditary transmission of culture within a culture" (Eloit, 1999). Eloit (1999) suggested that for a culture to survive it was imperative that there exist some means of relaying previous traditions down to younger generations. This type of structure within a society requires some form of developmental social organization.

The second condition states that a culture needs to be "analyzable, geographically, into local cultures." Cultures respond to their regional context in terms of use of available resources, natural surroundings and terrain. As such, these resources influence the regional cultures (Eloit, 1949). Studying regional context can aid in

deciphering and understanding the culture of that region at various points in time. Several theorists, such as Eliot in1999 and Amos Rapoport in1980, have indicated that religion is one of the central factors in the development of cultures (Eliot, 1999). While religion is important in the development of culture, Eliot argues that these religious factors should not be overly emphasized to the point of becoming a burden on a society. He contends that if religion were to be overemphasized the society would become too one-dimensional and cease to exist.

Language is another important aspect of culture which may provide invaluable insight into a society. Its importance comes from the fact that we are dependent upon our ability to communicate with each other. A study of a culture's language can uncover common phrases that may hold special meaning to the particular group of people under investigation. These sayings or phrases may disclose valued human traits or other characteristics. Some values may even go beyond the cultural boundaries and extend into the realm of humankind in the form of universal values (Eliot, 1949). Another important aspect of culture is universally held values. Anthropologists have proposed the possibility of the existence of universal values which may be shared by all cultures. Some of these values include the fundamental need for survival, the worship of transcendental entities, and the avoidance of pain and suffering.

Table 2. Different aspects of culture.

Aspects of Culture
Organic structure
Geographic Condition
Religion
Language
Values

Cultures vary largely by the focus on different areas of the cultural system. Variations between cultures are related to differences in this focus of the society. Focusing on different aspects could be explained by the tendency of different cultures to emphasize different sensory realms. Edward Hall, in his book "*The Hidden Dimension"* explored this phenomenon as it relates to human perception of space and describes how different cultures experience different sensory worlds (Hall, 1977).

2.5.2 Architecture as a symbol of culture

Architecture is completely a product of the context of the location where it is found. The nature of the relationship that exist between the built structures and space also known as "cultural marker" that is visibly read and understood like one would read the daily papers or a guiding map to give a description of the way of life of the people. According to Greaves, (1949), built structures are seen, as matrices for social structure. Many philosophers of anthropology strongly believe that architecture can be physically read to gain insight into the life of the people of a given society (Kenney, 1949). Going beyond the basic needs of a given set of people, the type of architectural formation responds to a deeper complex system. According to Joseph Esherick, real architecture has an attachment to a larger reality that goes beyond the architecture itself. Characteristics of the land, the attributes of the people, the economic basis of the building environment, range of uses, climate, culture-all are the real determinants of form (Fillip, 1991).

Every social group has a system of management, and the guiding principles by which they are governed. Culture plays a significant role in the society to give a mental ideology of its identity through the introduction of solid forms. If any society wants to experience transformation, it does it by using architecture. Geroter (2007) strongly

believes that architecture is the best yardstick to measure the culture of a nation. When a nation can make beautiful furniture and lusters but the worst buildings are built every day implies dark abnormal situation of the society in which irregularities and lack of power to organize the nation are generally proved (Geroter, 2007). Groter's in his book "aesthetics in architecture " revealed that each built structure as a component of the architectural design culture given to accomplish a psychological idea through what it projects in its form so it would be a good yardstick to evaluate the culture.

According to Hans Hollein (2001), architecture means spiritual discipline embodied in the buildings, thus every structure erected is a testimony of the goodness or badness of the idea behind it. In this regard, Shayan (2011) also states that culture can influence the formation or architectural spaces in two ways: a) by using the law in behavior pattern and guidelines results successful spatial organization and arrangement. b) By creating memories, belief systems, as well as psychological signs, in the nature of symbols, archetypes and metaphors that lead to creating meaning in the architectural space.

2.6 Architectural, identity and culture

Through the course of history, it can be observed that there has been a consistent effort toward achieving an integration of previous architectural styles with the new ones in each period to reinstate certain desired aspect of the old ones. This justifies the generally accepted fact that the present is rooted and influenced by the past. As Makstutis (2010) would put it; there is constantly some connection with a historic background which plays a very clear role in the design and realization of architecture. Throughout history,

there has been a permanent attitude to integrate previous architectural styles with the contemporary ones in each period of time to revive particular aspects of the past because the present is influenced by the past.

The historic past and architectural identity are closely knitted together. Identity always serves as the connecting factor between humans and where they hail from, this is known as national identity, besides; the architectural identity of a nation is dependent on the elements they portray and how these features are distinguished from that of other nations (Tavakoli, 2015). The historic past, historic buildings and objects all have a critical role in revealing the cultural identity of a country, just like an architectural monument represents a picture of the community's past from a first glance. The culture of a nation is formed by their historic past which is shaped by its various cultural heritage in a length of period as well as its architecture of the past are part of the psychological expression as well (Armstrong, 1995).

Every culture contains various meanings and illustrations that relates to the behavioural pattern of its people and is reflection of specific elements that is peculiar ethnic group, nation, or community. In its simplest form culture is referred to as the way and manner people relate to each other, eat, celebrate, worship, act and dress (Tavakoli, 2015). Culture proceeds and originates from the past and certain factors influenced its evolution, today, the coming together of several cultures causes a rising need to confront locality and identity. Thus, the identity of even the smallest group of people or

communities should be protected with all diligence. No matter how simple a building is, according to Lahoud, (2008), it possesses a certain level of uniqueness and should accordingly be preserved to represent its region's cultural heritage. “Architecture is one aspect of a nation’s heritage which contains structures and objects of the past and these are part of their identity. Architectural heritage has a dominant effect on communities and nations, specifically, on their identity” (Tavakoli, 2015).

Overall, it reveals the interrelation between cultural heritage and architectural identity. It reveals that architecture which represents the culture of a society might give characteristics to that specific building which might lead to architectural identity. From another point of view, *identity in architecture* is the consequence of elements which represent cultures of a society. Architectural heritage as part of tangible cultural heritage convey specific characteristic which gives identity to that architecture.

As a conclusion to this chapter, it can be stated that there is a direct relation between identity, architecture and culture. This chapter reveals the architecture of a society by reinterpreting its specific culture based on traditions, history, and geography. This specific culture gives a unique characteristic to the cultural based architecture which has been named in this thesis as identity. It also revealed in this chapter that identity in architecture might be classified in two main parts which are static and dynamic. The term identity in architecture expresses itself by the combination of both static and dynamic elements.

Chapter 3

TRADITIONAL IRANIAN HOUSES

The Iranian traditional architecture devolved from several attempts to meet human needs and living conditions in various regions. Climatic conditions, vernacular materials, land-topography, and culture are amongst the major factors that influences the architecture. Architecture in any part of the world depends on the life and culture of the people (Rapoport 1980 & Eldemery 2000). Through the history of architecture in Iran, Iranian architects have always designed their buildings to meet the needs of the people. The living spaces within their buildings were designed wholly on the basis of occupants need and in proportion to the human body (Pirnia, 2005).

Housing is one of the quintessential components of architecture in Iran. Family is the core of any culture and societal structure, it is an institution that ensures societal stability. Islam as a religion was the major factor that has influenced the culture of Iran. Besides, in the Iranian culture, there is an existence of a strong family ties. The designing of homes in Iran was primarily based on Iranian values and the house is considered the most pleasant place to be. They hold to the belief that the home is symbolic of heaven on earth and the courtyard (Hayat) is the core of this belief (Tahir et al, 2010). Each space allocation within the house is based on the role and function it is to be used for. Meanwhile, the various sections of the house are well connected using intermediary spaces (Shayan & Gharipour, 2005 & Soltanzadeh, 1998).

In a more specific term with regards to housing architecture in Iran, it is suggested in this thesis to assess the space in a detailed manner, the way and manner they organize and create the unique architecture of traditional Iranian houses. In this regard, the principles and the main elements of construction and the definition of the spaces that form the living area, will be considered to assess in this chapter.

3.1 Spatial organization and relation with privacy

Privacy is relative to different cultures or regions. It can be defined in the house as the regulation of relation of dwellers in a house and administering the relation of the outside with people who are abiding in the house (Gazzeh, 2009 cited in Eskandari, 2011). Privacy is considered the key factor the influences residential architecture. The cultural orientation and the religious beliefs are cardinal concerns in the mind of the users in Iranian architecture (Tahir M & Shabani & Arjmandi, 2010). Therefore, Nosratpour (2012) further reveals that the culture of Iran has a significant influence on its homes. "Mahram" and "Non-Mahram" is used to describe the relationship that exists between the opposite sexes in Iran. The relations that exist amongst male and females that are of the same family are known as "Mahram" while the one outside the family is called Non-Mahram (Shabani et al, 2011). This restricts women from engaging in activities outside the home. According to (Ardakani, 2013) separation in homes in Iran has been put in place to instill privacy by the organization of the open and closed spaces (Westin, 1976).

The traditional homes in Iran are basically introverted. The entire rooms are located around the courtyard, which is usually rectangular in form and connects to the different sections of the building. Certain geometric logic is used in the arrangement of the space. This geometrical pattern used determines how the entire body and each

individual detail of space are designed. It is also used in determining the graduation of spaces around the different parts of the house. Architecture in Iran, especially with regards to housing, had the interior structuring influenced by Islamic beliefs, interpersonal relationships, traditional family structure, social life (Asadi and Tahir, 2012; Nosratpour, 2012).

The basic Iranian traditional house is segmented into three spaces: **a) Public area:** this is an area that is specially apportioned for visitors and is usually located close to the main entrance. **b) In-between spaces or semiprivate (semi-public area):** these are areas specifically designed to function or family gathering spaces. These areas were best suitable for patriarchal families. These patriarchal homes possess different spaces that were designed to serve different functions (Pirnia, 2000). **c) Private area:** these spaces were restricted mainly for family and used for private functions (Ardakani, 2013:34).

Based on a critical study of the layout of the Iranian home, the findings indicate that the houses have about six layers in terms of graduation from public to private. It is indicative of the fact that this arrangement of space is a solution to the resident's cultural need. These layers are public, male social, female social space, semi-private, private, and personal private (Figure 12).

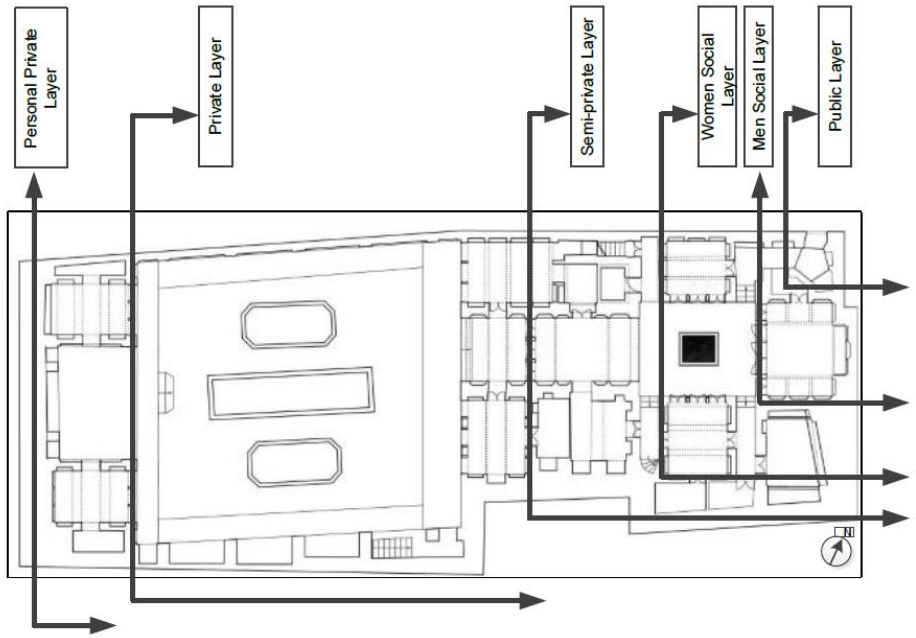

Figure 12. Interpreted privacy strata in traditional houses in Iran. Taj house. Kashan in Iran (Nayyeri Fallah et all, 2015)

Organizing the spaces of the public layer as external layer that includes the entrances to the building, reveals the spatial method of privacy from the external to the internal of the building (Figure 12). The area around the space for communication is waiting and conversing area. In certain situations, there are pavements on the sides where people can seat, and are used in welcoming visitors and friends. Thus, the main entrance is designed in ways that there is no direct entrance into the house. Then, having entered the vestibule (*hasti*), they go further into a corridor placed beside the vestibule and which further graduates leading to other intricate part of the building (Nayyeri Fallah et al., 2015).

The main entrance is designed such that people could not see through to the vestibule; this is to avoid a situation where the privacy of the family is compromised. In addition, the necessity for privacy makes the male and female to have two slots with fixed forms on the doorway. The slot-opening having a low noise was for the

male, while the one with the higher sound was for the female. This variation in sound enables the person to know whether the person at the door is a male or a female and hence adequately prepare to meet the person which is in front of the door.

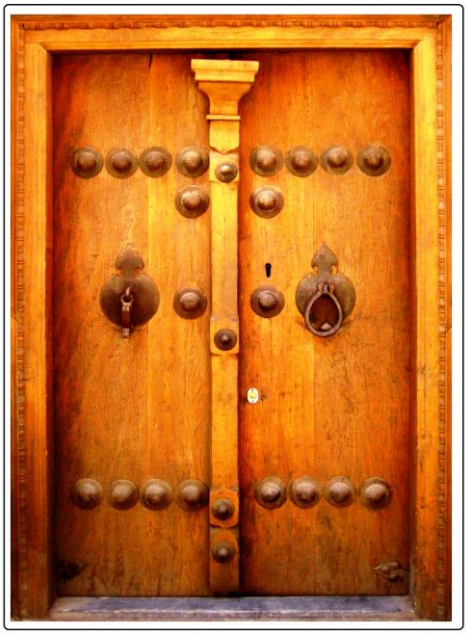

Figure 13. Typical door in traditional Iranian houses (URL 3).

Another very significant point are the portions of the *Quran* talked about earlier (the verses twenty seven, twenty eight, and twenty nine) mainly deals with the issues of the need for safety and liberty in the building. Furthermore, it is believed that the life of the humankind is made up of two dimensions; namely; the social and the personal dimensions, thus, this is expressed in their public and private life. There is a significant difference in how people live their lives in the private than as they would in the public. In Islam, there are specific guidelines laid by the prophet on how they knock, ask, and enters an Islamic home, and the Iranian architect have done the best they can implement this in their designs (Nayyeri Allah, et all., 2015).

The male social layer is the second layer of privacy. This area is specifically designed to accommodate male social communication. The ground layout of this portion of the building is such that there is no visual connection to the inside of the building, and it is located around the corridor. Besides, this part also has two parts for accommodating visitors and house helps (Gholam Gozar). The allocation of space which is based on levels signifies the principle of hierarchy within the building layers.

The next space after the male social layer is known as the female social space, (Figure 14). This layer is designed to limit visual contact because of the gender of the users. To accommodate male and female visiting the building's social layer the outside services area like cooking space, cleaning spaces, and outside storage area and been predicted. To reveal the significance of visitors is a core part of the culture in Iran as well as their Iranian–Islamic worldview, by using the connection between architecture and nature, have been used to create nice places for guest in the house (Nayyeri Fallah, et all., 2015).

Figure 14. Investigating semi-private layer. Taj home, Kashan. Iran (Adopted from Nayyeri Fallah et all., 2015).

Beyond this layer, is the most inner layer as identified by the Iranian traditional architecture known as the personal private (This area is fully private). These spaces are totally devoted to family use only and it is forbidden for visitors to enter this layer of the house. According to floor plan analysis, the most private section of the chosen traditional area in review (First floor, ground and under-ground floors) and the private space (completely private area) had been planned for the first floor alone.

3.2 Understanding Iranian traditional architecture

3.2.1 Intangible understanding of the identity in Iranian architecture

Intangible understanding of *Identity* in Iranian Architecture is a set of principles developed as some kinds of codes of practice which assisted in enabling the traditional remarks to achieve their ideas in designing process. In this regard, through the literature of traditional Iranian architecture, this study decoded the term "*identity"* from an intangible point of view in five main groups. These indicators have a substantial role to catch the main aim of effective design in ITH.

Table 3. Intangible / Ontological indicators of shaping Identity in Iranian Traditional Architecture (Developed by Author based on Pirnia, 2000; 2006, Cited in Ardakani, 2013).

Intangible / Ontological Indicators of Identity in Iranian Traditional Architecture		
1	**Users' needs** *"Mardomvari"*	- Consideration of human scale and function. - Each and every detail of a building fits for its users (Pirnia, 2000).
2	**Simplicity in design solutions** "*Ganj-o-banar*"	- Avoiding unnecessary elements (Sarrafi Nik & Hadafi 2011).
3	**Structural Rigidity** *"Niaresh"*	- Complex of statistics and structural calculations, with the addition of material science (Sarrafi Nik & Hadafi 2011: 429).
4	**Usage of Modular Units** *"Peymoon"*	- Determine the dimensions and proportions of different spaces, elements, and components (Monshizadeh et al, 2009).
5	**Self-Reliance** *Khod basandegi*	- Maximum use of existing facilities (Pirnia, 2006, Vakiliardabili and Boussabaine 2006).
6	**Privacy** *"Daroongaraie"*	- Appreciating the privacy (Sarrafi Nik & Hadafi, 2011).

These factors are all valuable experiences that Iranian architects have learnt during thousands of years of practice. Consequently, due to the use of this knowledge during the history, it converted as the identity of ITH from the intangible point of view.

3.2.2 Tangible understanding of the identity in Iranian architecture

The other classification of the identity is to look through the tangible elements and their organization in shaping architectural identity. The method of using tangible elements based on the culture and ontological understanding of a society might lead to different organization and understanding of spaces. In the case of housing in ITH, every tangible element of the spatial organization has been organized in a hierarchical process (starting from public to private spaces) to shape the identity. Figure 15 shows the Tabatabaeiha house in the city of Kashan (Iran) as a typical plan

of the ITH. It reveals how these elements are interrelated to each other. Assessing the function and architectural spaces of this house reveals that privacy was one of the most important factors of space organisation.

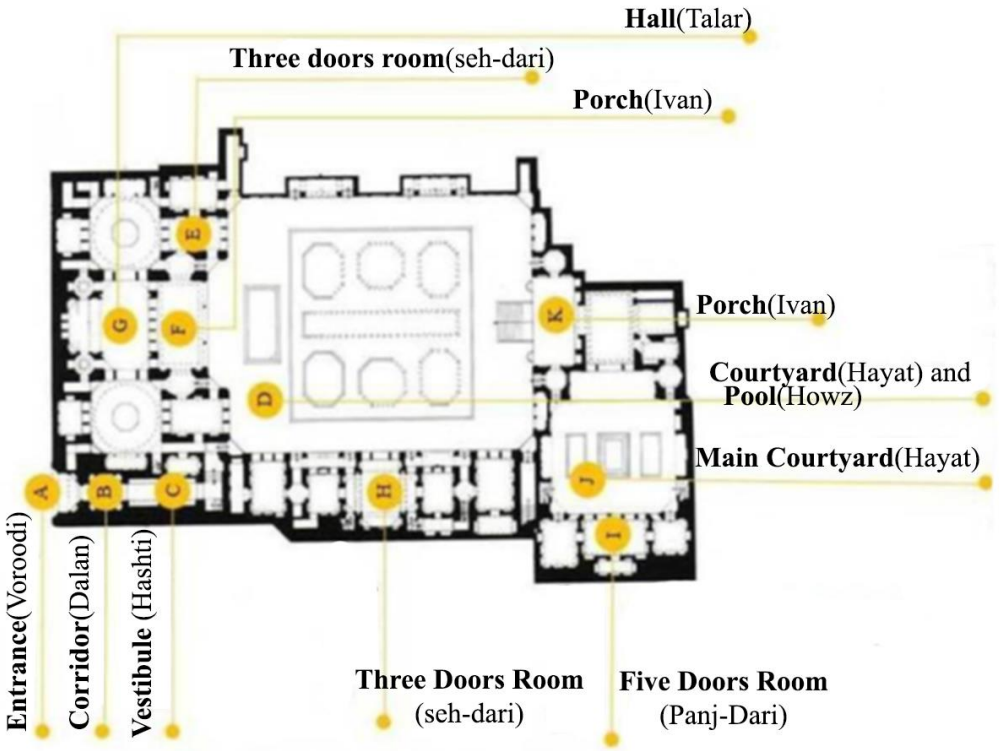

Figure 15. Hierarchy in spatial organization of ITH-Tabatabaian House (Adopted from Ardakani, 2013:18).

Overall, Table 4 illustrate the spatial tangible organization and component of shaping identity of Iranian traditional houses.

Table 4. Main elements in the spatial tangible organization of Iranian traditional houses.

	Different Parts in ITH	Components	Explanations
Open Spaces	B- Vestibule *(Hashti)*	- Has a low ceiling (sometimes in dome shape). - Is connected to both private and public spaces.	
	D- Courtyard *(Hayat)*	- Courtyard in ITH was the heart and center of the building. - The main core of spatial unity and collected functional elements.	
	C- Corridor *(Dalan)*	- Linking interior spaces to exterior spaces. - Provides accessibility of rooms from the courtyard (Hayat) to connect them together. (Memarian, 2009).	
Semi Open Spaces	A-Main Entrance and Gate *(Voroodi)*	**Portal** *(Sardari)*	Decorated with sentences from Quran verses on it.
		Platform *(Sakoo)*	Two stone benches on both sides of the entrance, used for sitting, and communicating with neighbors and also for resting.
		Knockers	Entrance doors were wooden and paired with two knockers. "The hummer knocker with high sound was used by men, and the other one was with low voice used by women" (Nosratpour, 2012, p: 2205).
	E- Porch *(Eivan)*	- Like a half-roofed area which was regarded as an intermediate area between courtyard (Hayat) and building (Nikpour et al 2012)	
Closed Spaces	F-Room	**Two doors room** (*Do-dary*)	- Was a space that linked to the courtyard with two doors and mostly used for family gathering. -Was mostly used in Qajar period and was rare (Parsi, 2012).
		Three doors, room (Se-dairy)	-For close relatives.
		Five doors room (*Panj-dary*)	- For gathering with family and close relatives.
		Seven doors room (*Haft-dary*)	- Guest room / For gathering with family and close relatives.
	G- Hall *(Talar)*	- Was a huge and high place constructed in the middle of one or two sides of the courtyard (Hayat) and was the most prominent place of houses.	
	I-Hoz Khaneh	- Containing a pool inside and sometimes had rich ornamentations.	
	J-Service areas	**Kitchen** (Matbakh)	Kitchen (*Matbakh*) was located in the back of the main body and was usually designed in square or rectangle form (Memarian, 2009).
		Toilet (*Mostarah*) and **Bathroom** (*Hammam*)	Were designed in lower surface or basement of the house.
		Storage (*Anbar*)	Another space where different types of tools and necessities such as wheat were kept (Moradchelleh, 2011).

The spatial characteristics of ITH reflect natural, geographical, and cultural needs. The main feature of the ITH is its conformity to the climate of the country. As a result, a greater number of traditional houses are introverted (Tavassoli, 2002). Accordingly, it is the spaces organized around a rectangular courtyard that shape the connections among diverse zones of the houses. The arrangement follows certain geometrical rules. Based on Haji-Qassemi (2003), the geometry in spatial organization of ITH, not only describes the overall rationale of the construction, but also correspondingly imposes chain of the organization to its different spaces. This organization has also been determined by their associations in accordance with their character, importance and location. The issue of privacy was also an important factor in spatial organization of ITH. The spaces participating in shaping the identity of ITH organized is a kind of hierarchy from public to private. Figure 16 illustrates the interrelation of spaces in ITH.

The entire nineteenth century was a period in which the people of Iran experienced major reversals and ups and downs. In that era the whole nation of Iran began to fell the need of "modernization" which was already taking place in Europe and the west. This awareness gradually caused an eye-catching amount of interaction between the west and Iran and consequently the desire of the people and leaders of Iran started to take place towards development and transformation (Armaghan, Soltanzadeh, & Behbahani, 2014a). The lives of Iranians are greatly influenced by religion. Their religious leaders were not only vested with the responsibility to give spiritual and religious guidance to the people, they also gave instructions and teachings to govern the people's day to day life. The ethnic sphere of the nation was made up of a variety of various religious groupings such as the Islam, Christianity, Zoroastrians and Judaism (Bashir**,** 2000). From the social context, Iran is very diverse and has a

mixture of different social units made up of tribes, clans, city dwellers, and villages, all having varying cultures, origin, dialects, some of which include; Kurdish, Persian, Arabic, and Turkish. With below 50% of the populace speaking Persian, because of the multi-cultural nature of Iran, it was known as a 'communal diversity' (Abrahamian, 1982, p. 18).

Monarchs succeeded in the rulling and politics of Iran, using little or no democratic governance. The Shah's orders were the final words, his wishes were commands, his speeches were the truth and he was the shadow of God *(Zellollah)* to people. Hence, no political party existed, social and political parties were not allowed to function, no one ever had the right to stand up to the decisions of the government, they had the absolute power. But things gradually began to change in the middle of the nineteenth century, it was a new dawn as a modernize way of governance started emerging in Iran (Armaghan, Soltanzadeh, & Behbahani, 2014b). The economy at that time was weak, but they had a growing population of about 5 million growing to 10 million. The use of trains and *caravan* (a group of merchants using camels to travel) were the major routes used for the transportation of goods and services as well as for communication. This was later changed when the Russians and English traders strengthened internal trade with Iran. Thankfully, new ways of communication were put in place with Iran to facilitate expansion (Bashir, 2000). In 1912, the first motor car was introduced in Iran, and most importantly, this period saw the construction of the first Trans Iranian Railway system which was in 1917. Figure 26 illustrates Horse-driven wagon in south of Toupkhaneh Square toward the end of the Qajar period in Tehran.

Through the course of history, it can be observed that there has been a consistent effort toward achieving an integration of previous architectural styles with the new ones in each period to reinstate certain desired aspect of the old ones. This justifies the generally accepted fact that the present is rooted and influenced by the past. As Makstutis (2010) would put it; there is constantly some connection with a historic background which plays a very clear role in the design and realization of architecture. Throughout history, there has been a permanent attitude to integrate previous architectural styles with the contemporary ones in each period of time to revive particular aspects of the past because the present is influenced by the past.

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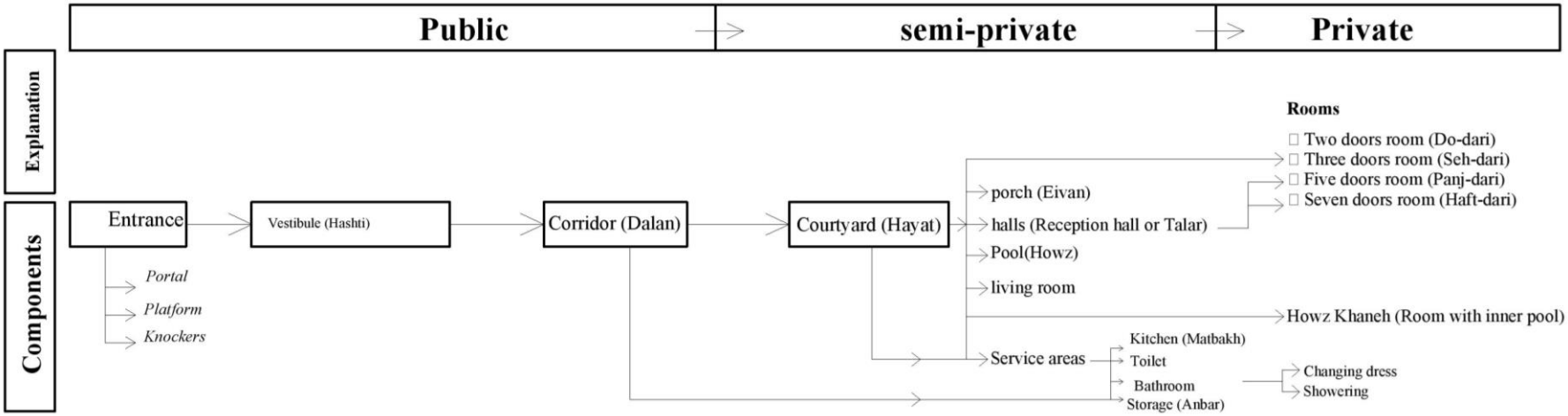


Figure 16. Hierarchy in the spatial organization of the Iranian Traditional Houses.

The following part will explain in details the main design principles of Iranian architecture. It focused more on Pirnia's study and manifestoes on Iranian traditional houses and their construction principles.

Pirnia (2005) stated that the traditional architectural formation of Iran has been shaped by certain important factors. Each of these essential components plays a crucial role in helping to achieve the efficient Iranian type of home designs. These essential factors include: User's needs, Simplicity in design solutions, the use of modular units, Self-efficiency and privacy which have been explained in the following paragraphs.

3.2.2.1 User's needs

Architecture is basically a response to meeting people's needs as the demand arises, finding solutions to these needs results in architecture. The two guiding principles Iranian architects constantly adhere to our understanding each individual and knowing how to meet their housing need. Architecture has always been guided by people's way of life. "To be in accordance with people's needs" (Mardomvari), its interpretation is paying attention to the needs of people while raising a building (Moradchelleh, 2011). This specifically relates to functionality in the construction of houses; it means that before considering the social status of the occupants, all the needs physical needs should be met. Figure 17, 18, 19 shows how Iranian architects develop methods to fulfil user's requirements.

Figure 17. Designing based on human scale and their requirements as part of the design to meet its resident's requirements (Reference: URL 4).

Figure 18. Design Niche in a specific height to be reachable while people sitting or standing (reference: URL 5).

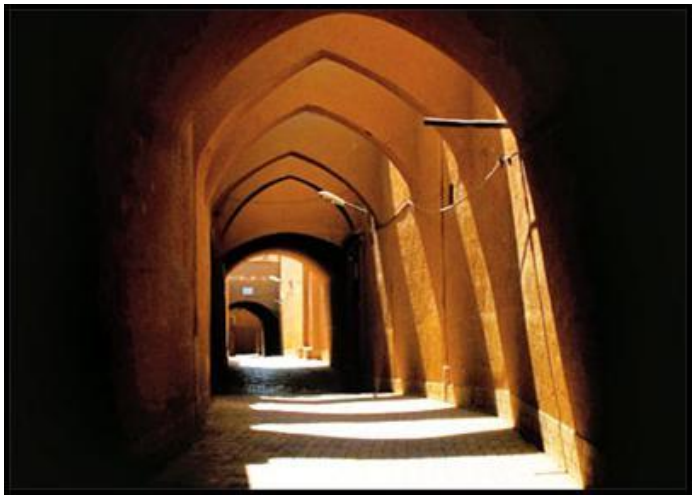


Figure 19. Sabat as one of the main elements of Iranian architecture prepares shadow for the one who passing from the alleys (reference: URL 6).

3.2.2.2 Simplicity in design solutions

Traditional Iranian architecture seems to be good logical simplicity in design solutions based on contextual knowledge and materials. They had a means of paying attention to the sustainability factors of their time, which includes the cultural, environmental, and ecological dimensions. The architects were very rational and logical with every building they designed. Even when carefully observing these structures, it is clearly seen that every part is constructed based logic such that waste was completely avoided (Sarrafi Nik & Hadafi, 2011). In this regard, according to Pirnia (2006), it is clear in Iranian architecture that they did everything possible to avoid the unnecessary, both before the advent of the Islam, the Islamic holy book states that "A believers is he who avoids uselessness and waste"(Ardakani, 2013).

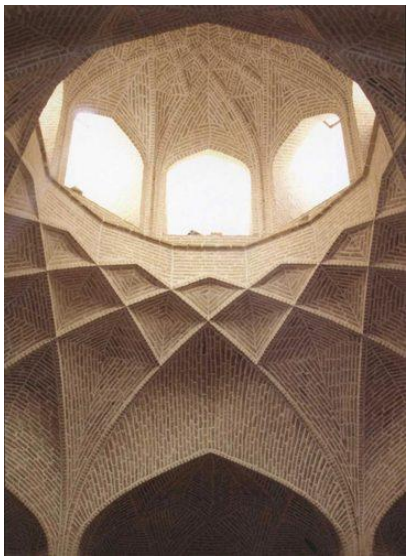


Figure 20. Even if there was any ornamentation in the building it has its own contribution to support the overall structure of the building-this is an example from the public spaces (Reference URL 7).

3.2.2.3 Structural rigidity

Architecture in Iran concentrates a lot in structural rigidity of the buildings. They always ensure that this is not in any way compromised **(**Niyaresh) and a good

understanding of materials "Strength rigidity refers to static knowledge, construction technique and materials science in terms of static aspect and construction" (Pirnia, 2006 quoted in Sarrafi Nik & Hadafi, and 2011: 429). In this regard, There was a belief that unnecessary design and works not only wastes labour and capital but also spoils artistic and aesthetic values (Sarrafi Nik & Hadafi, 2011). Iranian Architects didn't create a separation of structural rigidity (Niyaresh) from aesthetics so after several decades of experience, they had found a mean of measurements (peymun) based as a result of this understanding and used generally in architectural constructions.

Figure 21. The science of structural rigidity of understanding the material and using them to have a stable structure (Reference: URL 8).

3.2.2.4 Usage of modular units

Modular unit is the primary means of measuring things in Iranian traditional construction. Modular unit was used as the major yardstick in determining proportion and other dimensions in buildings (Monshizadeh, 2009). This was a key factor in Iranian traditional approach of design.

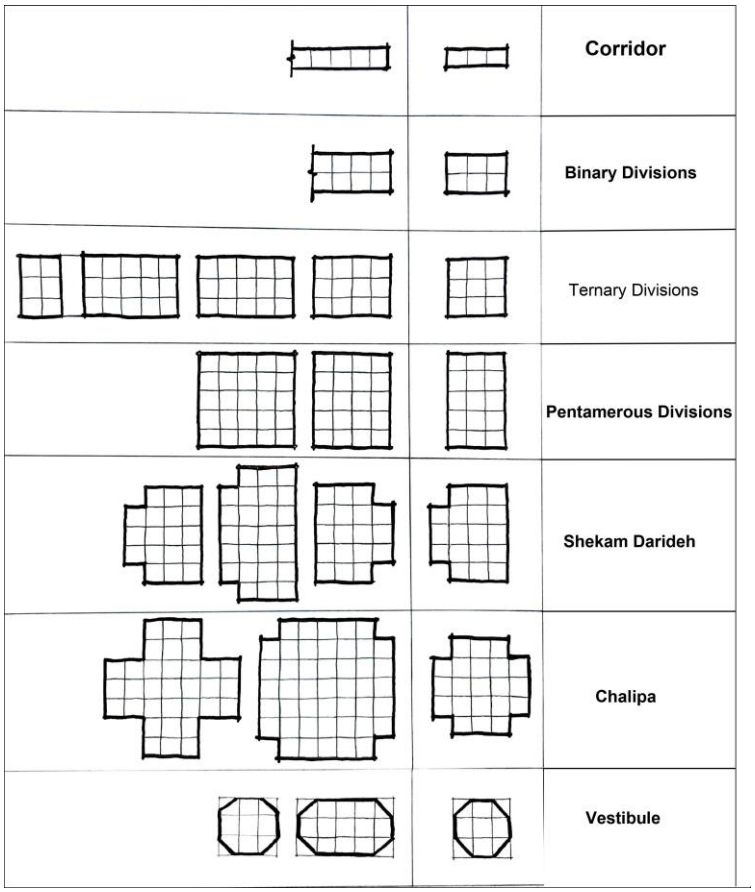


Figure 22. Different type of Modular units in traditional Iranian houses (Adopted from Parsi, 2012, cited in Ardakani, 2013).

3.2.2.5 Self-reliance

Being self-sufficient was a quintessential rule amongst Iranians; Iranian architects already possess the resolve to use vernacular materials and this has become an important part of Persian architecture. Besides, architects endeavor to source their materials from available materials around the immediate surroundings of the building making them even more self-Reliance. This made the construction of the buildings faster and in harmony with the immediate surroundings. Furthermore, repairs and renovation were very easily carried out because the materials have been always readily available (Pirnia, 2006, Vakili Ardabili and Boussabaine 2006).

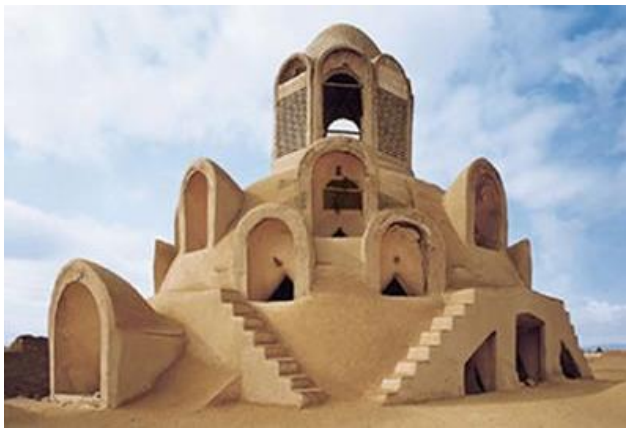


Figure 23. Mud as a main material in shaping construction process of Iranian traditional houses (Reference: URL 9).

3.2.2.6 Privacy

Being introverted is a basic feature of architecture in Iran; this is caused by the fact that privacy is very essential in the Iranian culture. Sarrafi Nik & Hadafi (2011) believes that being introverted is part of the Iranian culture and that is why it has become a huge part of their architecture. Traditional housing in Iran is broken into more public and more private areas. Allocation of space in the building is done to create privacy (Mahramiat) for occupants of the building (Ardakani, 2013).

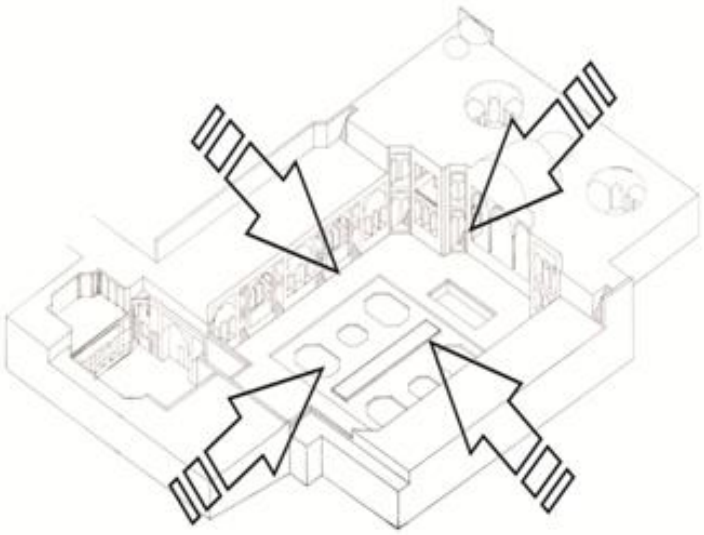


Figure 24. Privacy by introverted design (Reference: URL10).

Overall, this research classified the identity of the Iranian traditional house in two main parts. The first part which is intangible refers to the ontological understanding of the term *identity* in Iranian traditional architecture and the second part refers to the tangible elements contributing in shaping the identity of the Iranian traditional house. Overall, the importance of hierarchal levels, as a key guideline in the design of building globally, has made its mark more in the land of Iran. Hierarchy is a key principle in governing the organization of matter, regardless of it natural or man-made. There is an existing natural hierarchical pattern in nature of the environment (Seyfian & Mahmudi, 2007). Naghizadeh (2000), suggests from an Islamic standpoint, that the universe, as well as any object possesses a specific point and status whose value and status is based on its place in the hierarchy of things. The man-made environment also follows this protocol and its sections have particular status based on the values of the functions that is performed within it, and the occupants as well as their relationship with other adjacent areas. This element has a relationship with the immediate adjacent spaces. Furthermore, to create an architectural form, the use of the hierarchical principles leads to the formation of different territories having their various peculiar functions and spatial borders.

Therefore, where you have the components of a building separated into various territories with distinct functional framework, there would be a gradual graduation from one territory to another suddenly and without preparing the needed conditions is undesirable.

In summary, the vital point of using the guidelines of step by step progression of space in the architecture system of the urban sphere, where public domains are distinguished from enclosed areas and grouped based on functions possesses a lot

more important role in strengthening private spaces in the planning of a continuous space.

Chapter 4

QAJAR HOUSES IN TEHRAN

For the first time in the history of Tehran in 2011 a research project by the municipality of Tehran for comprehensive study of the historical buildings of the city based on the list of Iranian national heritage has been introduced. The output of the research project has been published as a book with the name of "Introducing the Historical Buildings of Tehran" (Farahbod, 2018). Architectural characteristics of Qajar houses during the assessment process of research project captured the attention of the author to focus more on Qajar houses.

Totally, there were 68 buildings belong to Qajar period. According to the information from the Iranian national archive the author had an exact date of constructions of the buildings of Qajar period, there has been a realization of the possibility of classification of Qajar houses based on the construction date and method of constructions in three main groups which in this thesis is called as a) Qajar houses of the first period, b) Qajar houses of the second period c) Qajar houses of the third period. That's why the study in this thesis considered these three main classifications to assess the main elements of shaping identity in Qajar period. Since all buildings in each and every period where approximately the same, it has been decided to choose five buildings from each and every period.

This research will focus on the Qajar period (1795-1925) of Iran. The Qajar period was founded in the eighteenth century, it was during this period that Iran experienced its industrial revolution (importing new technology from European countries). The founding father of Qajar, Agha Mohammad Khan, picked Tehran as his headquarters in the year 1795. Accordingly, the history of the Qajar period can be broken into three distinct periods:

a) The first period of Qajar: the first period is the time of the reign of Agha Mohammad Khan (1794 to 1795 AD) and Fath Ali Shah (1797 to 1848) respectively. This reign lasted for about forty years. During these monarchs reign, some notable incidents occurred, one is the French Revolution and the rise of Napoleon I occurred in the West (Kiani, 2000; p. 93). Within this time, Qajar state through the signing of two Golestan and Torkamanchay treaties ceded a large area of Iran (North- West part of Iran) to Russia

b) The second period of Qajar: This was the time and period when Nasir al-Din Shah ruled. The reign was between 1848 to 1896 AD. The key event during this period was the killing and the murder of Ghaem Magham Farahani and rebellion of Agha Khan, the leader of the Islamic sect of Ismaili during the reign of Mohammad Shah (Nasiri Ansari, 1971; p. 273).

c) The third period of Qajar: This period experienced the rule of Muzaffar al-Din Shah who was in power between the periods of 1896 to 1925 (Kiani, 2000:13).

The chronically classification of kings in Qajar Period has been illustrated in Table 5.

Table 5. The chronical classification of kings in Qajar Period (Reference: URL 11).

Period	Name	Born-Died	Beginning of the kingdom	End of the kingdom
First Period of Qajar	Mohammad Khan Qajar	1742–1797	20 March 1794	17 June 1795
	Fat'h-Ali Shah Qajar	1772–1834	17 June 1797	23 October 1834
	Mohammad Shah Qajar	1808–1848	23 October 1834	5 September 1848
Second Period of Qajar	Naser al-Din Shah Qajar	1831–1896	5 September 1848	1 May 1896
Third Period of Qajar	Mozaffar al-Din Shah Qajar	1853–1907	1 May 1896	3 January 1907
	Mohammad Ali Shah Qajar	1872–1925	3 January 1907	16 July 1909
	Ahmad Shah Qajar	1898–1930	16 July 1909	15 December 1925

Qajar period experienced significant changes in their housing design, and this was due to political and economic changes that occurred at that point in time (Farhi, 2005). Qajar period has also been referred to as the period of change from the former tradition style of contemporary architecture (Shamim, 2000). However, the Qajar period has been referred to as transformation age, this thesis asserts that it has its own distinct identity. In order to truly unravel this identity, the capital of Iran, Tehran, which is the historic base of the Qajar period has been selected as the limitation for this research to study on houses in this period. Besides, there are still several houses in Tehran that exists from the time of the Qajar period, this will be very useful to increase the validity of this study.

4.1 Tehran as a capital of Qajar period

4.1.1 An overview of physical geography of Tehran

Tehran is a pivotal city in Iran and indeed the nation's capital situated in the northern central part of Iran (See Figure 25). Tehran transited from a small inhabitant to a

major urban centre of 12 million residents thereby hitting its mark as the largest metropolis in Iran and one of the most inhabited worldwide since its institution by Agha Moḥammad Khan as Iran's capital city over 200 years ago (Amirahmadi H, Kiafar, 1987).

Figure 25 . Map of Iran (Reference URL 12).

The maximum heights of the Tehran's northern region reaches about 5,600 feet (1,700 metres) above sea level and to the southward the maximum height reaches 3,600 feet (1,100 metres). With a range close to 2,000 feet (600 metres) in-between north limits and the southward abuts. This phenomenal difference in elevation and because Tehran's is positioned mountains and desert have had substantial influence on the social and physical properties of the Tehran. The country has a hot, desiccated weather which is ubiquitous everywhere along central Iran (Farhi, 2005). Tehran mean yearly precipitation of about 10 inches (230 mm) and undergo a mean of 48 days of hoarfrost every 365 days (Amirahmadi H, Kiafar, 1987). The city's increasing environmental problems are atmospheric pollution, pollution of the water,

and pollutions that has to relate to noise and land. Winds coming from the northern parts of the city are incapable of removing the vitiated air, and the significant blows, which arrive from the western, southern, and southeast parts of Tehran, only result in more polluted air as they come with polluted air due to industrialization in those areas (Farhi, 2005).

4.1.2 Demographic history of Tehran

Tehran as the location of the governing body of Iran and largest capitalization, it has consistently developed in size, and number of dwellings and until it was approximately 10% of the nation's population in the early 21st century. The city gradually urbanized till mid-1950s and '60s. As soon as the city's urbanization plateaued, the country sides witnessed improved growth-rates till the mid-1980s when it similarly started declining.The plateaued experience of Tehran in terms of city growth was partly as a result of natural drift to suburbanization which culminated to decline of population and physical quality of its central areas. The incursion of commercial enterprises into residential districts, heightened traffic rules, inflections in governance, the growing industry, easy access to resources such as land and fuel, more pronounced social divide, and citizens hope of a more salubrious living standard all culminated to enhance the operations that led to suburbanization and predicated the depreciation of the physicality of the city's urban core. Whereas the decline in the pace of growth at the metropolitan area was the consequence of natural abatement of growth rate and emigration.

Aside from the short interval of time during the wake of the 1980s, birth rates have generally declined. Migration to Tehran was also tardy as the result of sky-rocketing cost of living, associated problems of rising congestion, barriers on industrial operations, unemployment conjoined with urban sprawl and other economic issues

(Hamnett, 1994). Altogether, the inhabitants of Tehran are quite young and about half of them were less than 27 years at the close of the last century (Farahi, 2015). This tendency is particularly in the outer boundaries of the city, in particular southward parts where the poorer population and rural immigrants with larger families on their first arrival to the urban center resides.

4.1.3 Socio-cultural and political aspects of Tehran

Towards the end of the last century, the populations of Iranians that decided to migrate to the city capital were above 60 percent (Hamnett, 1994). The extended family had to a large extent being supplanted by the nuclear family at the commencement of the 21st century. The economic realities did not give room for large extended families as the trend drifted from agriculturally based to industry and services. In most cases, it is the older generations that stayed behind as the younger families migrate to the cities. Government policies in housing, cost of land, wartime rationing all supported the formation of nuclear family and promoted the growth of smaller residential building units. The average family membership is reduced to four as the trend towards nuclear family became in vogue (Hamnett, 1994).

Tehran has 22 municipalities under a major primary municipality. The maiden legislative assembly after the Constitutional Revolution (1906) passed as a municipal government under the leadership of a mayor and moderated by a council of functionary officials. This legal fabric has a large extent to be preserved, even after the Iranian Revolution (1978–79). All through the 20th century, the functionary officials operated at irregular intervals and powers were not fully decentralized to the local levels (Hamnett, 1994). After a long discontinuance, the Tehran city council was reinstated in 1999, and had the backing of the administration of elective community advisory councils in 2006. While attempts by Tehran to obtain pecuniary

autonomy from Iran central government in the 1990s enjoyed relative success even though arguably so and indeed often fraught with social and economic vagaries; this process was followed by municipality of Tehran (Amirahmadi H, Kiafar, 1987).

Despite the fact that the city is a meeting place for diverse ethnic and language groups, the prevailing tongue and tradition is Persian. The Iranian Revolution is marked with characteristic cultural changes, prohibiting particular types of communication and encouraging more appropriate types. Therefore, orthodox arts like calligraphy and music resuscitated alongside the various academic establishments and art sudios involved. Moreover, a plethora of youth clubs, traditional sites, and centres of learning were constituted to meet with demands of the youth population (Amirahmadi H, Kiafar, 1987). Tehran has made recognizable inputs into arts such as music, theatre, museum, cinema and culinary.

4.1.4 Economy of Tehran

Tehran is the economic hub of Iran. It has above 50% of Iran's industry. Some of the industries are motorcar manufacturing, electronics and electrical wares, armament, clothing, sugar, cement, and chemical products (Madanipour, 1998). There is a paucity of foreign industries in Tehran. Three airports operate in the city, these are: Mehrabad International Airport, Imam Khomeini International Airport, and Ghaleh Morghi airport (Madanipour, 1999).

Towards the end of the last century, jobs that has to do with social and personal services in Tehran, averaged above 33.33%, production about 20%, and about 16.67% in saleds (Madanipour, 1998). Transport, building and the pecuniary sector employed relatively modicum number of Tehran's manpower. In all, services about 66.67% of the manpower, with more modicum amount in smaller proportion

employed in industrialized labor and insignificant amount in agriculture. Goods sold to consumers, stocks and public welfare services are more numerous in service sector.

4.2 Social and political changes in Qajar period

The entire nineteenth century was a period in which the people of Iran experienced major reversals and ups and downs. In that era the whole nation of Iran began to fell the need of "modernization" which was already taking place in Europe and the west. This awareness gradually caused an eye-catching amount of interaction between the west and Iran and consequently the desire of the people and leaders of Iran started to take place towards development and transformation (Armaghan, Soltanzadeh, & Behbahani, 2014a).

Eventually, this led to attempts and efforts by governmental organization and private institutions to ensure that modernization takes place.

The lives of Iranians are greatly influenced by religion. Their religious leaders were not only vested with the responsibility to give spiritual and religious guidance to the people, they also gave instructions and teachings to govern the people's day to day life. The ethnic sphere of the nation was made up of a variety of various religious groupings such as the Islam, Christianity, Zoroastrians and Judaism (Bashir**,** 2000). From the social context, Iran is very diverse and has a mixture of different social units made up of tribes, clans, city dwellers, and villages, all having varying cultures, origin, dialects, some of which include; Kurdish, Persian, Arabic, and Turkish. With below 50% of the populace speaking Persian, because of the multi-cultural nature of Iran, it was known as a 'communal diversity' (Abrahamian, 1982, p. 18).

Monarchs succeeded in the rulling and politics of Iran, using little or no democratic governance. The Shah's orders were the final words, his wishes were commands, his speeches were the truth and he was the shadow of God *(Zellollah)* to people. Hence, no political party existed, social and political parties were not allowed to function, no one ever had the right to stand up to the decisions of the government, they had the absolute power. But things gradually began to change in the middle of the nineteenth century, it was a new dawn as a modernize way of governance started emerging in Iran (Armaghan, Soltanzadeh, & Behbahani, 2014b). The economy at that time was weak, but they had a growing population of about 5 million growing to 10 million. The use of trains and *caravan* (a group of merchants using camels to travel) were the major routes used for the transportation of goods and services as well as for communication. This was later changed when the Russians and English traders strengthened internal trade with Iran. Thankfully, new ways of communication were put in place with Iran to facilitate expansion (Bashir, 2000). In 1912, the first motor car was introduced in Iran, and most importantly, this period saw the construction of the first Trans Iranian Railway system which was in 1917. Figure 26 illustrates Horse-driven wagon in south of Toupkhaneh Square toward the end of the Qajar period in Tehran.

Figure 26. Horse-driven wagons in Tehran (Photo from Baharestan historical magazine, Iran, 2nd edition, September 1998).

During the Qajar period, social life of the people has been affected directly based on new technologies which came from the west. Electricity was one of the important invention of humanity which has been introduce in 1879 to Iran. At the beginning, electric lamps rejected by religious people (they believed that the spirit of Satan has been blown in the electric lamps), then it has been used for the first time in Golestan Place (Figure 27). Traditionally people used to sleep after the sky started to become dark. But by entering electric lamp to the social night life of the people has also completely changed in such a way that to stay awake during night time.

Figure 27. Electrical lamps, for the first time in Iran- Golestan Place (Refeence URL 14).

Women's dress also has been changed completely in Qajar period. Based on Shahrza (2014) and study of the history of women's wearing in Qajar period, it has revealed that there is the possibility of classification of women's wearing in Qajar period to two main periods.

A) Before traveling of Naser Adin-shah to visit European countries

In this period people where using the same style of dress which they used to wear traditionally. In this period, chador was the main dress for women to wear it in public spaces. In this period women had specific clothing inside the houses also (See Table 6 a and 6 b).

B) After traveling of Naser Adin-shah to visit European countries

In this period, Naser Adin-shah was impressed by the European women's clothing after visiting European countries. Therefore, he ordered to change the traditional

style of clothing. Table 6c illustrate women's dress in Qajar period in public spaces after reformation.

In this period women's clothing inside the houses has also changed. Short skirt is one of the symbols of modernization which have been add to the women's clothing style after Naser Adin Shah's impression of European countries (see Table 6 d).

Table 6. Women's wearing in Qajar period.

	Public Spaces	**Inside the houses**
1) Before traveling of Naser Adin-shah to visit European countries	 a) (Reference URL 15)	 b) (Reference URL 15)
2)) After traveling of Naser Adin-shah to visit European countries	 c) (Reference URL 16)	 d) (Reference URL 17)

Furthermore, there was a significant development in infrastructure, with the construction industry experiencing a rise in the construction of roads connecting the major cities (Zomorshidi, 2011). Due to this transformation, there was a significant growth in the number of people moving to the urban core, most of them to the capital city of Tehran.

4.3 Urban development of Tehran

Throughout the history, Tehran has been faced with urban transformation. Before Tehran, there was a city named Rey in Teymuri (1370-1501) period. During the Safavid period (1501-1736) Tehran has been considered as a city and all the people of the Rey migrate to Tehran. During the Qajar period (1795-1925) due to the good climate of Shemiran many kings and rich people built their house in the Shemiran and it was a beginning of shaping this village. Starting from Pahlavi period and after the Second World War the fast urban growth of Tehran led to distribution of people between Tehran, Rey and Shemiran. That's why the land between Shemiran and Rey has been considered as Tehran. Figure 28 illustrates the process of urban development of Tehran. The following paragraphs will also explain urban development of Tehran in detail.

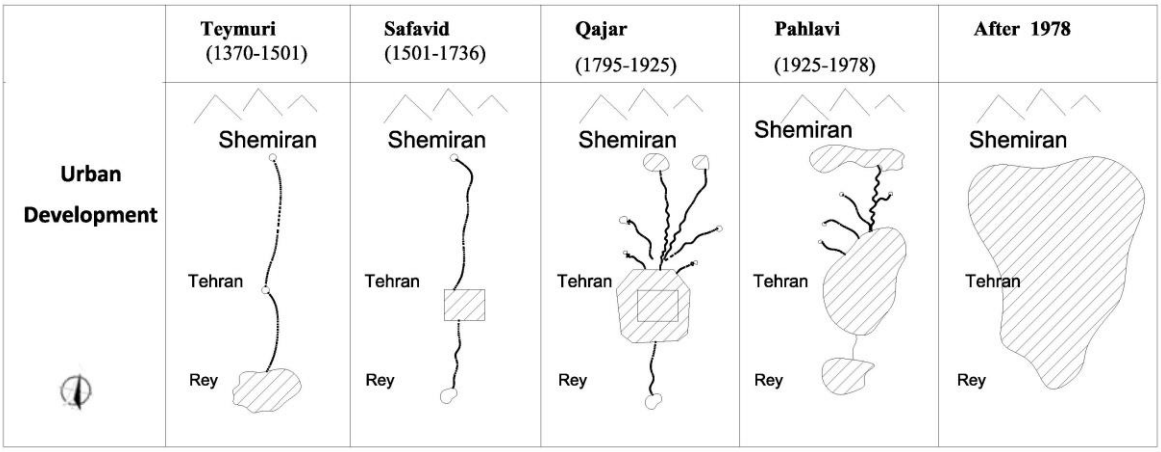


Figure 28. Urban Development of Tehran Through the history.

4.3.1 Urban development before Qajar period (Before 1795)

The most important reason that Tehran was mentioned in historical records before it gained its importance as the capital was that it was neighbouring with Rey- a city with more than six thousand years of history which has been revealed in historical

excavations (Schmitt, 1933) and has also been mentioned in some holy books and scriptures such as Avesta, Onyx Testament, ancient Greek inscriptions and ancient stone inscriptions of Darious in Behistun Kermanshah (Farahbood, 2017). This city was home to some well-known people and they were usually labeled Razi (Rey Zi in Persian) which means one who lives in Rey. Rey had been destroyed several times due to multiple disasters such as earthquakes, fires and invasion of other sovereigin especially Mongols (Homayun, 2000). Therefore, the remaining people moved to the northern parts of the town because of its nice weather, great gardens, springs and fountains and since Tehran was located in between, the city flourished and gradually developed over the years (figure 29). Spanish traveler Ruy Gonzáles de Clavijo in a journey that began in 1404 visited Tehran and that is how he describes Tehran:

"Tehran is a very vast town which has no walls around it and is a nice and happy place in which all means of comfort can be found. But they say, the weather is not very good especially when it gets really hot in summer. The area is extremely vast and fertile and the territory belongs to the kingdom of Timor's groom. It was around sunset when we moved and after going for about a mile or two we saw a huge urban sprawl was abandoned and destroyed. But many of the towers were still there and we also saw the ruins of a mosque. They were the remains of the city Rey which previously used to be the largest city in the area, however now it is completely deserted (Gonzales, 1404). Farsnameh, written by Ibn Balkhi in the first decade of the sixth century in lunar calendar, is among the other works remaining from old Tehran which talks about pomegranate as a nice fruit in Tehran (Farsnameh, 1926). Also in the book "Asaar Al-belaad Va Akhbaar Al-ebaad" by Zakaria Mohammed Ebn Mahmoud Qazvini in 1276 AD he wrote about Tehran "…as a large and

populated village, which is the appanage of Rey. It has many gardens and orchards and its fruit is excellent especially the pomegranate (Zakaria, 1276).

In Safavid period, Tehran was formed differently and according to Shah Tahmasb, battlements were built around Tehran in 1555 and the barrier is well-known as Safavid barrier. Having city walls with battlements around cities was a sign of importance of the city and that it was safe and capable of fighting back against enemy invaders. The number of defensive towers around Tehran was 114 in accordance with the number of chapters in Quran and a Quran is buried under each for blessing. Soil from two parts of Tehran was used for building the towers. Therefore, two deep plunges were made in those parts of the city which were later named “Chal Meydan” (meaning plunge square) and “Chal Hesar” (meaning plunge barrier) (Homayun, 2000). For commuting to and from the city, four main gates were made in the four main directions of north, south, east and west and were named after the most important places and monuments in these directions. The northern gate was onward Shemiran village and was named “Darvazeh Shemiran”, the southern gate was towards the city Rey and because of the presence of Shah Abdolazim shrine there, it was named “Darvazeh Abdolazim”, the eastern gate was facing Doulab village and was named “Darvazeh Doulab” and finally the western gate was onward the city Ghazvin and was therefore named “Darvazeh Ghazvin” (Homayun, 2000). The current location of the wall span on the today’s map of Tehran is as follows:

a) North side of the wall: On Amir Kabir St. from the east and on Imam Khomeini St. from the west

b) East side of the wall: Rey St. from Qiam Sq. to Amin Hozor 3-way Junction

c) South side of the wall: Moulavi St. from the eastern side between Mohammadieh Sq. and Moulavi Junction

c) West side of the wall: Vahdat Eslami St.

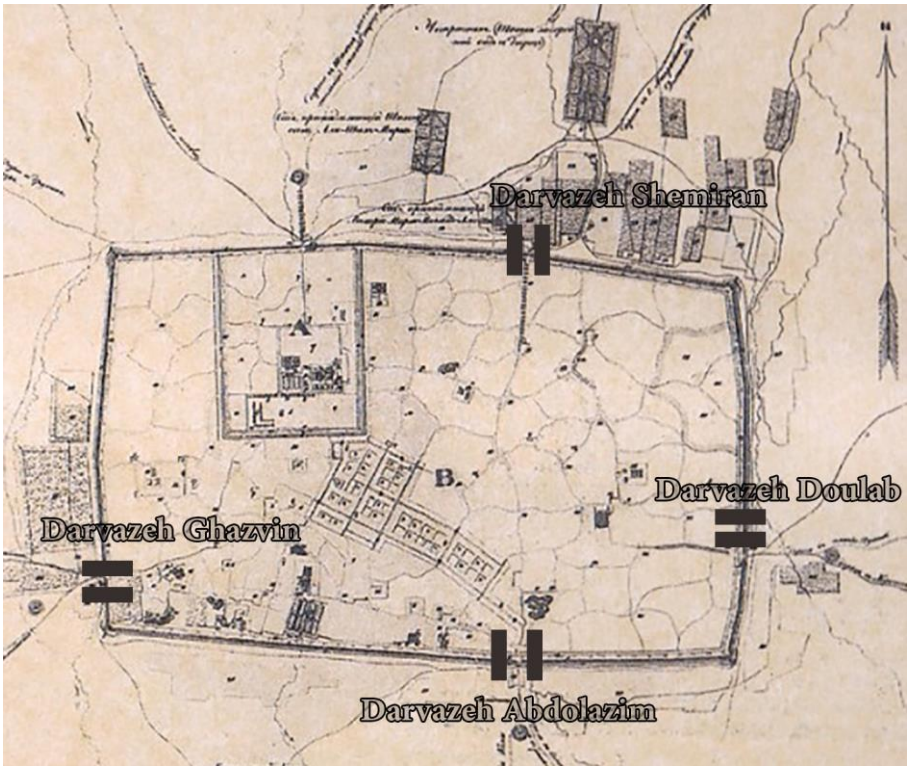


Figure 29. The first Map of Tehran with 4 main entrance in 1826 (Nazkof map of Tehran, Adopted from, Shiraziyan, 2012).

Many travelers have also talked about this period in their itineraries. Pietro Della Valle (14), Italian explorer who visited Tehran in Safavid period in 1618 AD says: “Tehran is an expanded city which is larger than Ghazvin. The city is full of gardens and orchards and has all types of fruits in it. The streets are full of oak trees and the tree trunks are so thick that even two grown men cannot reach their hands if they hug the tree hand in hand and I really have to name this city the oak tree city.” During Safavid period and then Afsharieh period and after that Zandieh kingdom, Tehran still managed to live in silence. Accordingly, the following Figure reveals urban transformation of Tehran before and after Qajar period.

4.3.2 Urban development during Qajar period

The original walls of the city were built by the order of Safavid Shah Tahmasb (Reg. 1525-76) in 1553, it remained intact for a century, until the end of the 19th century, when under the reign of Naser al-din Shah from1848 to 1896, the city was extended and enclosed using octagonal wall model after Vauban's design for Paris (Figure 30).

Figure 30. Map of Tehran by Abdo-Ghaffar in 1891 A.D (Shirazian, 2012).

The constructions of the octagonal wall two kilometers in the northern direction and one and a half kilometers towards the east, west and south. Extending to the north, several more gardens and greenery were added to the city's environment, which later the highbrow area of the city where the elites resided (Abasi and Asgari, 2005). As it can be seen in the map, a larger percentage of the city wasn't built upon but was rather made into gardens or farm lands and left for future development (Sahab, 1977). In this period, the king and rich people have decided to build their own villas in a village in Northern part of Tehran with name of Shemiran. (Figure 28).

4.3.3 Urban development after Qajar period

At the end of Qajar and early Pahlavi monarchy with the rise of Reza Shah, he ordered to destroy the barrier of the city in order to expand Tehran in 1932. Thus, Tehran loses its traditional sense and turns into a completely modern city. Many of the villages around Tehran like Doulab, Shemiran, Tarasht, Beryanak and Vanak became parts of the city as it further expanded. The expansion of Tehran speeded as foreign architects who were mostly European, entered the city in order to build a modern city out of Tehran (Mokhtari, 2012). We should not also forget the role of Iranian architects who were perusing studying in foreign universities. Construction of government offices, universities, military bases, airports, factories, industrial parks, and many other monuments that are a fusion of Persian and European architecture, all happened during this period. Many problems, including the issue of security was solved with the launch of courts, the construction of new prisons and the formation of modern police (Homayun, 2000). Tehran's drinking water problem that must have be accountable to the people of the city was solved with water piping setup and people's transportation problem was solved with smoke vehicles and public

transportation. Along with an increasing rate of immigration to the capital from other cities, urban population has also contributed to the growth of the city and in a relatively short period of time and in less than 80 years, Tehran turned into one of the largest cities in the world in terms of both extent and population wise (Mokhtari, 2012).

In this period, there were basically two key styles of architecture that were prominent in the new streets of the capital city, these replaced the previous eclectic forms used in the Qajar times. A contemporary abstract style was the inspiration in part, by the new classical style of the inter-German war, and a historicist style that adopted the pre-Islamic architectural motifs on the outside. While the previous was majorly fitted into high rise buildings that were the facades of the new streets, the new was integrated into governmental buildings. Through the railroad network and its stations, the hegemonic physical identity of the state was disseminated throughout the country. The period in between the years 1930 to 1941 also experience the period of new forms of residential building arising, characterized by orthogonal streets, particularly to the western and northern sides of the city. These areas were especially reserved for high governmental officials, *karmandan*. The expanding bureaucracy of the Pahlavi state, translated into a new phase of housing area (Balilan, 2013).

During this transformational change within the urban frame, the core of the city gained greater prominence and significance. After the imperial seat was

removed taken to the western side of the city, several of the Qajar prominent buildings were demolished and replaced by contemporary buildings, governmental institutional and a number of new residential buildings built by the state ministries of housing: the virtual central core of the city wasn't any more a place covered by gardens and court-yards used by the Shah's harem, but was rather now made up of imposing space dotted with free-standing modern structures, symbolizing the centralized state of Reza Shah and its heavy reliance on bureaucracy.

4.4 Traditional spatial organization of Tehran

From the beginning of the Qajar period, the city of Tehran possessed a traditional form physically and culturally (Ramazan Jamaat & Neiestani, 2010: 65). Development of Tehran refers to its selection as capital and architectural buildings of Tehran was also evolved parallel to its growth and development became obvious. It was until the middle of the Qajar that Tehran's architecture was classified as the major ubiquitous traditional style of architecture practiced in Iran (Pakdaman, 1997: 619). The architecture was more focused on the inwards, for example the houses were oriented to the inwards rather than extraverted, besides, they were built to go one floor high and the backward of the building had very narrow and tight pathways (Pakdaman, 1997:620).

Overall, it can be said that before modernism took root in Tehran in the mid period, there were, in fact, inherent and intangible progresses and differences in architecture and urban planning of Iran. In every age that passes, they

handed over their building skills to the next generation that was how the architectural style was passed on gradually but progressively. From other point of view, it is revealed that governmental as internal factor and nongovernmental organizations as external factors were the main boosters which lead to transform Iran from traditional approaches of design to the globalized country. The houses which have been constructed during Qajar period which doesn't have common roots from its traditional principles of construction are the main evidence of this claim. The field study by the author on all of the excited Qajar houses, revealed four main factors which are common in many Qajar house; windcatcher, Orsi window, Santouri and spring houses, that are mostly used in Qajar houses of Tehran. It has also been revealed through the study in this chapter that the buildings tended toward externality. Meaning that the traditional concept of internal design by the courtyard in the center has disappeared and has been replaced by new designs of houses which are mostly extroverted with the windows opening directly to the street or allays. The study revealed that the process of transformation from traditional in Qajar house can be grouped in three main classifications.

4.5 Evolution of architecture in Qajar period

The architecture of Tehran before Qajar period, follows the traditional notion of design. Since Tehran was a small village before Qajar period there were no any distinguished building to remain from that period. Architects before Qajar period respects to the vernacular materials, culture and context of design. Over the Qajar period the idea of housing design has been completely changed to the modern approach of design which doesn't have any relation with the traditional approach of

housing design. As it is shown in Figure 31, the efforts by both the government and non-governmental organizations are separated into phases, with the attainment of each of these phases and clearly described. There are two essential items that needs to be taken note about the descriptive framework for modernization attempts in Iran during the 19th Century (Bashir, 2000): "Governmental attempts" in modernization of Iran, which has been also known as effects of internal factors in modernization, which can be classified in three main phases and respectively are military development by Abbas Mirza; social political, cultural and economic development by Amirkabir; and human development (civil society) by Sepahsalar. "Non-governmental attempts" in the modernization of Iran during the 19th century, which is also known as external factors in modernization of Tehran and might be discussed based on astonishing and admiration of the technology; social and political confrontation; cooperation and analysis. Rich people and their social political and technological awareness due to their travel to the western countries considers as a non-governmental attempt in modernization of Iran and especially in Tehran as the capital of Iran in Qajar period.

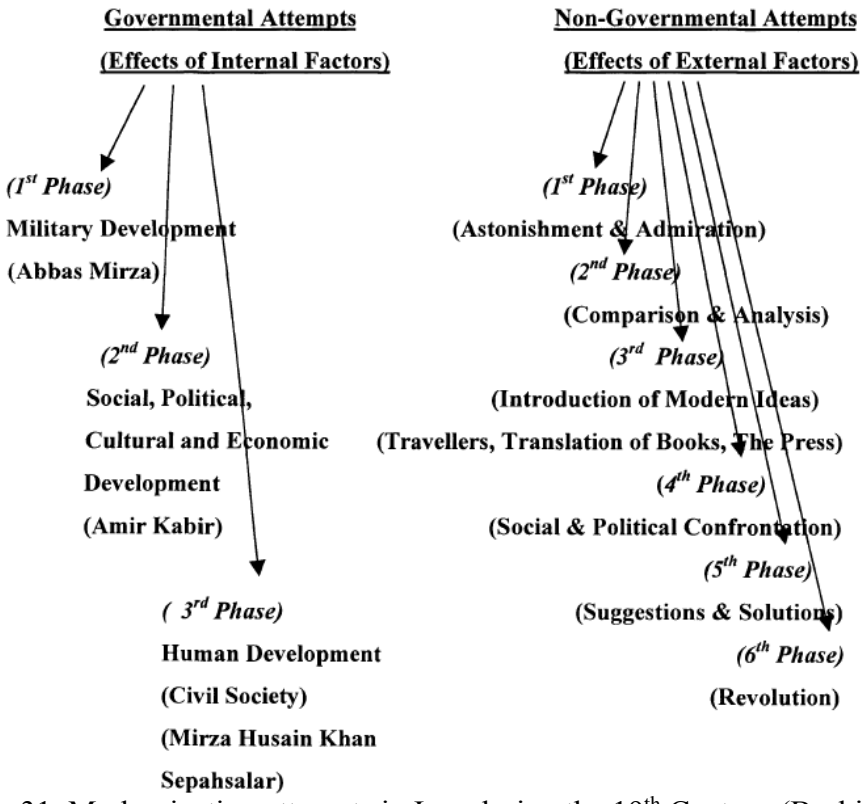


Figure 31. Modernization attempts in Iran during the 19th Century (Bashir, 2000).

4.5.1 Imitation of the Western architecture

First support and influence of the Iranian development is from the western world, this was in the form of innovation and it happened during the Qajar period and as a result of diplomatic relationships by the leaders, commercial journeys, translation of literature into the Persian language, immigration of Iranians to the west brought about some kind of eclectic architecture. A number of the buildings that were erected were an imitation of some of the western styles those in Qajar period included: "*Shamsolemareh mansion*" which was built by the order of *Naser-Al-din shah* and by imitating the tall buildings that he had seen in the West (Bashir, 2000). *Shamsolemareh has been considered as one of the tallest buildings in Tehran on Qajar period.*

Figure 32. Shamsolemareh as a manifestation of tall buildings in Iran (URL18).

"*Tekye Dolat Mansion*" which according to Soltanzadeh (2011) is an imitation from Royal Albert Hall building in London.

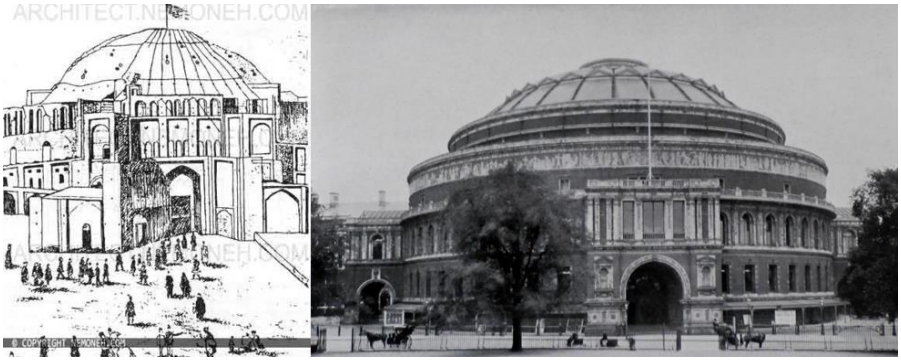


Figure 33. Tekye Dolat (Left) and Royal Albert Hall in London (URL 19).

In Qajar period, architects depended on second handed drawing sheets in the form of *post-cards* and *paintings*, though there was an absence of the basic instructions on the guiding principles of how the architecture worked, the use of ornamentation in buildings, the use of certain western elements which in some cases are senseless, and partly no attention was being paid to analogy and sizes according to the former ages that led to eclectic and imitative forms (Hamzehloo and Shahcheraghy, 2015).

The use of wall paintings was a way in which they express beliefs, aspirations, and ambitions. In Qajar culture, they mainly use these paintings for decoration of wall, and were also used in the Qajar tiling.

After the mid-17th century, Iranian students were sent to Europe specifically to learn their methods and the European painting acts. Although, there are still varying opinions as to whether the Safavid painters (Safavid is the period before Qajar) went to Europe to learn from its painters, or the westerners came over to teach them. However, records still have it that in the late 17th century, there were Iranians in Europe who went to study painting. These students of painting were sent to Europe by the Armenian Christians who were at the Julfa district in Esfahan, these paintings were going to be used for the decorating of their churches and probably by the *Safavid* Period (Emami, 1998).

The leaders of the Safavid community were drawn to these paintings which were imported by Iranians in Europe. Oil painting first came into use in Iran in the 17th century as a result of the growing relationship between the Safavid kingdom and the west, while oil wall painting fully came into use, during the second half of the 17th century. The paintings on the walls were not only elements of ornamentation used in the palaces, but also indicative of the victories won by the king; hunting paintings, portrait of the king, as well as special occasions (Utaberta *et al*., 2011).

The influence of European painting on Qajars painting was basically in the use of oil technique, this was adopted from Europe by the Safavid paintings indirectly, and the major themes and expressions of this time were to a large extent Iranian. A number of Iranians were sent to Europe in 1859 they were 42 students in all, this was the

largest group sent at that time to learn painting (Mohseni and Saradehi, 2011). Tutors from Austria and trained Iranians residing in Europe happened to be the first tutors in this European system of training. Until the close of the 19th century, 'during that period, there was no dividing line between fine arts and decorative art as it was already been practiced in Europe' (Mohseni and Saradehi, 2011).

These Artists went through training locally and they worked as members of their league. *Naser al-Din Shah* played a significant role in the advent of new arts. The introduction of photography occurred within the first ten years of Qajar. *Naser al-Din Shah* personally loved photography he took about twenty thousand photos out of forty thousand photos of his collection in the Golestan Palace. Painting was fun to him, besides; he always had the Dar al-Fonun to regularly check the students' works as well as new innovations (Mohseni and Saradehi, 2011).

Overall, Qajar period has been also called as the beginning of modernity or transition period in Iran. Various scholars such as Pirnia (2005), Soltanzadeh (2011) and Tavakoli (2015) called this period as "the era of emerging new Western ideas and their influences on Iranian traditional architecture": Travelling to Europe and bringing their artworks to do the same design in Iran (Saremi, 19973), the arrival of the first group of graduates and architects from Europe and designing based on "*postcard architecture*" (Ghobadian, 2004), the recession and the crude culture of the Qajar period (Pope et all., 2008), effect of foreigners and their new products and advertisings (Pirnia, 1990), more social, political and economic association of Iran with Europe (Ansari, 1971), feelings of humiliation by observing artistic and technical superiority of the West (Nohi, 1995), introducing Western common European decorations and new types of architectural styles of that time by the

Western engineers to Iranian architecture (Pakdaman, 1994), presence of European architects and engineers in *Darolfonoon*[1] (Habibi, 1999) and appeal for the new Western methods of construction from the aesthetic point of view (Ghobadian, 2004) are the most important reasons of alterations in Qajar period .

Overall, in the Qajar period, various factors affected on the architecture and urban development. Figure 34 illustrates chronologically the social, political and economic factors shaping the identity of Qajar Architecture. As it illustrated in Table 6, Qajar period can be classified from a chronological point of view in three main periods. All indicators shaping identity of architecture mentioned, such as the difference in building structure, the method of decorations, spatial organization, form and shape of the buildings led to this classification. Gamma map in Figure 34 is just revealing the process and intensity of factors that developed based on quantitative analysis of the case studies and historical analysis in different periods of Qajar. The method of using gamma map here in this thesis is to consider the number of social, political and economic changes and theirs effects on the identity of Qajar in different period of Qajar. Gamma map in Figure 34 has also developed based on and number of social, political, and economic change in different periods of Qajar. Qualitative assessments of these changes and its positive and negative effects on the Qajar architecture is the main reason of illustrating imaginary gamma map. As it has already explained in this thesis, the social and political changes in different period of Qajar revealed that the first period of Qajar has les contribution in changing the identity of traditional Iranian houses. From the other hand, in second period of Qajar, number of social, political, and economic changes has been rapidly increased. Starting the third period

[1] The First school of architecture in Iran

of Qajar to the end of this period the number of social, political and economic reformation changes that affects to the identity of Qajar house has also been decreased.

As it is visible and will be explained further, in the first period of the Qajar period, architects tried to pay respect to their tradition. For this reason, the Gamma Map illustrating the alteration of identity of architecture in figure 34 is horizontal. It also revealed that, from the second period of the Qajar, there has been a sharp increase in the process of modernization in term of increasing quality of space organization. In the third period of Qajar, due to the First World War, and the king's inefficiencies of that period, there was a dramatic fall of architectural design perspectives. Decreasing quality of space organization and little attention to its traditional architecture were the most important factors that led to these problems. These fluctuations in the identity of Qajar architecture will be explained in the Figure 34. The usage of electricity in the lightning of houses are the most important factor which changed people's lifestyle. That's why it has been considered as a turning point toward modernization in the Qajar period (Pakdaman, 1994). The following Figure is the graphical illustration of all socio-political and economic changes in the era of all Qajar kings, which some of them have been discussed in the previous paragraphs.

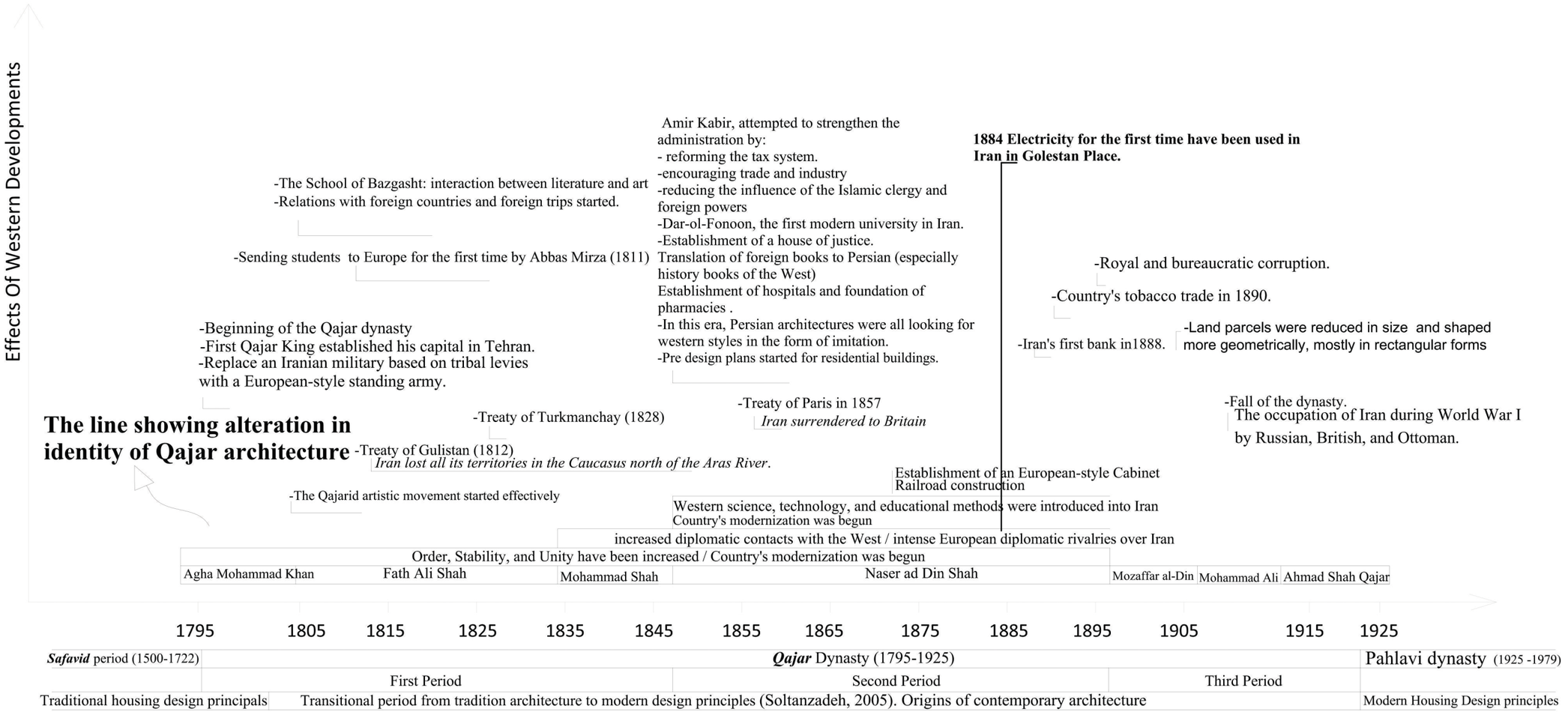


Figure 34. Chronological evaluation of factors affecting the identity of Qajar Architecture.

4.5.2 Common architectural elements

Qajar architectural status can be rated through its architectural history, way before the new generation. To be more precise, Qajar architecture can be seen in its continuous reoccurrence in previous architectural expressions like in Safavid period. In several cases, as a result of infrastructural development such as streets, and squares in Iran, this has caused some significant changes to the architectural landscape of the Qajar period.

Even though during Qajar period West, Europe and even some eastern countries like China and Japan had some influence on Iranian culture, architecture and art, Iranian community were still more interested in a more open contemporary world but religious believes were the main idea and concepts for traditional designers, architects and artists for their designs in public places like mosques, bazaars and carvansarays. The main changes in culture, architecture and art were seen in their personal places like their own houses and even in these houses they wanted to have their own culture beside these new elements of West or East. In fact they wanted to have old and new materials beside together (Zomorshidi, 2011).

Apart from the fact that there are many elements representing architectural identity of Iranian traditional houses which have been explained in chapter 3, the main reason of selecting these main factors are the only factors which have mainly and majorly changed and or eliminated during the Qajar period. These eliminations and adaptations from western architecture has direct effect on the architectural identity of houses in Qajar Period.

Windcatchers of Houses in different periods of Qajar have been changed its form until it has been completely eliminated. Orsi and Santouri window has got its special crescent form during this period, which just belongs to this period. In this period, also by the effect of Ottoman in architecture Jamkhane found its own way to enter in designing public and private spaces in Qajar houses. Spring house (Hozkhane) which is the main elements of representing nature in architecture has also eliminated in the third period of Qajar houses. Overall, apart from all the indicators of traditional Iranian houses which will evaluate to understand its changes, the above-mentioned indicators will assess in detail.

At this point, the study presents seven main elements which are traceable to the architectural identity of the Qajar period (there might be a possibility of existing some of these features in the other traditional houses in Iran, but it is just obvious to see all these indicators at the same time in Qajar period). These five elements are: Windcatcher, Orosi Window, Santouri, Jamkhane, Spring Houses, Pool and and Garden.

4.5.2.1 Windcatcher

The Windcatcher has been identified as one of the major features of the architecture in Iran and even during the time of the Qajar period. These windcatchers were often erected over-head the cisterns, king's domain and housing environment to serve as air cooler (Tavassoli, 2002). A good example of this is the Windcatcher in Golestan Palace in Qajar period - Figure 35. "Initially windcatchers were designed such that they were vented only from an opening and the air directed through this vent to the interior of the building, tiling was used to beautify it, with time, it took a more elaborate step towards perfection and further evolved its form by having two floors

and four directions with eight openings and the wind catchers of Qajar period can be seen in Tehran and also in Yazd, Abarqu, Kashan, Tabas, Semnan and Damghan" (Nasiri Ansari, 1971; p. 273).

Figure 35. Windcatcher in Golestan Palace (Reference: URL 20).

Qajar period is the last period in the history of Iranian traditional housing which contains windcatchers. This architectural element has been eliminated from Iranian houses after Qajar period due to the effects of globalization and its principles in construction (Sadeghi, 2016).

4.5.2.2 Orsi window

The Orsi was a special type of opening in the walls that had a vertical closing system and was basically integrated into the inner areas of the building, upper floors. Besides, several patterns as well as colored glasses were also used for its decoration. (Soltan Zadeh, 1996; p. 30). During the Qajar times, the Orsi type of openings used above doorways on the walls were in form of arches and crescent, others were

circular in form and oval shaped openings were also used it its decoration. The major differences between the Orsi openings during the Qajar period and the Safavid period is the basic fact that the openings of the later periods are usually rectangular shaped, zigzag or squared. While the window openings above the doorway during the Qajar period ware basically arches, crescent and configured work for the decoration (Sarikhani, 2003; p. 60) - (Figure 36).

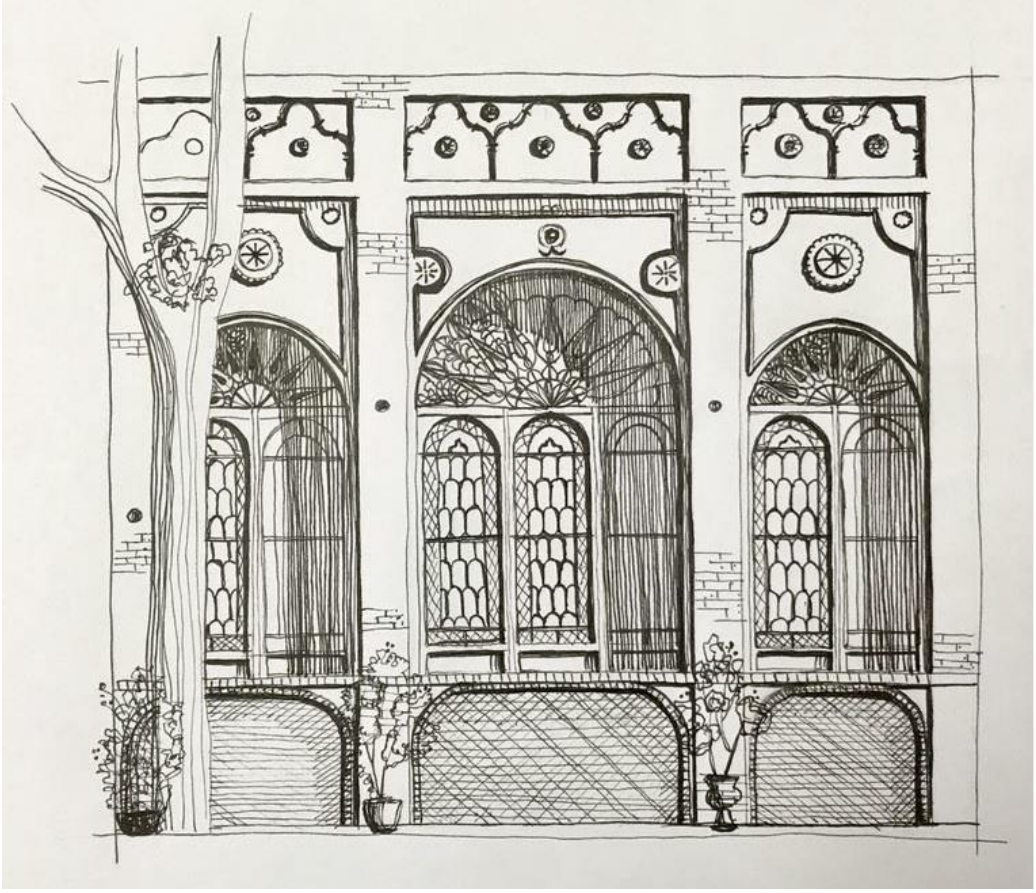


Figure 36. Orsi windows of Qajar Period (Sketch by Author).

4.5.2.3 Santouri

The antiquity of buildings *Santouri* in architecture dates way back to the 700 BC in Greek temples. The use of *Santouri* was also not ubiquitous in the Iranian architectural practice before the Qajar period (Tajfel, 1982). It's got integrated into Iran during the Qajar period from the classical architectural period in Europe through

the increasing interaction and relations built to the west at that time (Soltanzadeh, 1996; p. 163). *Santouris* are not necessarily in triangular shapes; they could either be vaulted or arched at the top (Figure 37).

Figure 37. Santouri as most representative element of shaping identity of Qajar Houses- *Baroque effect in architecture* (Photo from author's archive taken on 2015).

4.5.2.4 Jamkhane

This is a special kind of window opening specifically designed to be used over domes and bathroom spaces as well as some other kind of buildings such as traditional Hammam. Jamkhane is basically made up of a spherically designed clay finishing and in other cases with several holes made on it. Jamkhane was popularly inserted into spaces by taking several glasses in all seasons, to control the humidity of the space (Soltanzadeh, 1996; p. 31).

Figure 38. Jamkhane in Qajar Period-*Ottoman effect in architecture* (Reference URL 21).

4.5.2.5 Spring house (Hozkhane)

During the last period of Qajar, another function of the space was developed by making a skylight, a brand-new area created to form a pleasant space. “It was particularly used in the summer as a place to retreat from the heat” (Tajfel, 2002). Well decorated spring houses usually have a prismatic form that is usually high above the other parts of the building and it also has several skylights on it, light is guided into the prism by wooden covers. This part is particularly a lovely and pleasant space within the building. This is because there is allowance for sufficient light to enter in, well ventilated space, better humidity control and the presence of a water in the pool further increase pleasantness, especially during the hot summer periods by increasing moisture in such a hot and dry climate.

Figure 39 . Spring House of Mahinestan (Reference URL 22).

4.5.2.6 Pool

Pools were the undeniable part of architectural identity in Qajar period. It is representing symbol of nature in architecture (Tavakoli, 2015). All the houses which exist nowadays from Qajar period have a pool and a garden surrounded with it. Based on the local conditions, human taste and cultural factors the shapes of the pools are different. In this regard, it can be seen that in Qajar period pools got different geometrical shapes. The shape of pools have been transformed from simple rectangular or square in the first period of Qajar to the more complex symmetrical shapes in the third period (Figure 40).

Figure 40. Pool as undeniable element of houses in Qajar period. Photo from Mogadam house in Tehran (Reference: URL 23).

4.5.2.7 Garden

Historically, Iranian architects have always been trying to bring nature to their designs. Designing of garden in the courtyard of the house leads to prepare microclimate for its residents so in the residents can enjoy the comfort zone (Soltani, 2010). From the other hand, fruit trees have always been in front of Iranian traditional houses. Overall, it is possible to say that wherever people built their houses in Iranian traditional houses and even in Qajar houses it is most likely to see gardens which is surrounded by houses (first period of Qajar) or the detached houses (second and third period of Qajar) which is surrounded by gardens (figur Figure 41).

Figure 41. Ferdousi Garden in Tehran (References: URL 24).

4.6 The household of Qajar period

Qajar society imbibed the pluralist philosophy in the sense that it accommodated a plethora of groups of diverse social status. Privileges were traced through the male line as well as the right of alienation of residences after marriage although there is exception to this. It was a fraternity of deep family relationships operating on the principle of the extended family, and kin groups are not measured based on social or economic standards but simply to embraces individuals from different categories. (Mahdavi, 1999a). The extended family practice was norm in Qajar society which meant that aside from the first basic nuclear family, grown male children, their wives, children together with the female children that are not yet married all dwell in the same place. When the householder is rich, the household would then consist of a lot of servants, retainers, distant relations and guests (Pakdaman, 1997). In rich households and situations where there were more than one spouse each of the spouses will be provided with her personal dwelling unit (Mahdavi, 1999a).

It is often difficult to Figure re precisely the count of all the servants in the household at a point-in-time. This is because while some of the servants routinely visit their families, others travel to the country-side to see their relations while on some

occasions, the relations themselves do the visit and as a result, the structure of the household was never fixed but dynamic (Ansari, 1971).

Spiritual devotions, operations of the Persian household coupled with occupation of the householder are the items (established in order of importance) which determine the structure and function of the house and household. Irrespective of the household size, the household structure being patrilineal provided the oldest male with authority. Aside from the fact that sexes were generally separated, the roles allotted to household members were clearly defined. The leader of the family house being the oldest man has the sole power to take every important step based on his discretion. All others had to comply without calling him to question (Mahdavi, 1999a). He is also responsible for caring for the needs of every member of the household. Gender discrimination was not only socially but reflected in routine activities as well. The women took care of the home while the men (including the household head) provides the support needed for daily up-keep. Amongst the women folks, the household head's mother exercised authority. The children use their time with their mother as well as other women within the household. The task of looking after the children were allocated to special handmaidens, a nursemaid for milk-feeding, weaned through the grandmother and schooled through the assistantship of an instructor (Mostowfi, 2004; Mahdavi, 1999a). Children and adults co-exist within the same spatiality and were expected to possess the same propriety in manners and conduct as adults. The process involved mastering delicate skills of socially acceptable manners, speech and approved etiquette in Qajar society. Visitors were entertained depending on their marks according to diverse established protocols (Farmanfarmayan, 1980).

The status of the female gender in the community which were in line with the approved religion (Shiʿism Islam) has a lot of bearing on domestic architecture in Qajar. Consequent upon the fact that women had to cover themselves, kept away and separated from men, dwellings were disaggregated into two compartments: the first is named andaruni (inside) for the female and male that are allowed in according to religious ethics (maḥram), aside from the other biruni (outside) the male (Nafisi , 2002; Bakhtiar and Hillenbrand, 2002 ; Mahdavi, 1999b). Similarly, the poor who cannot afford to modify their dwellings which might consist of one room only, simply divide the room using curtain or other form of dividers. Basically, the house plan in both cases predicated on the same principle with the only exception being that the poor has a higher room density (Mostowfi, 1998; Mahdavi, 1999a).

A gatekeeper whose sole duty was to open the door stood at a narrow aisle that led from the entrance doorway to the dwelling in cases of the affluent in some dwellings, male visitors and female visitors had separate knockers. The narrow aisle ends at a six-sided or eight-sided room known as Hashti, where doors in either directions guided to the biruni and the andaruni. The door outlet to the andaruni was usually veiled to differentiate it from biruni door. The layout for each part of the compound is alike; only that the andaruni compound had more dwellings. The doors led to the backyard or a small vegetated area. In the Andarui there are elevated dwellings of rooms everywhere around the court. The court has a central pool used for ablution as a requirement for prayers. A verandah (ayvan) from where steps directed to the court was attached to the frontage of each dwelling. Aside from the court, the dwellings are inaccessible from each other. One of these three dwellings were intended to be the most important which would consist the large central hall in the Andarui. In this building, the women would welcome and share pleasantries with other women, men

that are allowed according to religious ordinance and the building is also intended for the gathering of the whole household. Everything pertaining to social involvements are done in that dwelling. Each piece is constituted by rooms assigned for prayers, for storage and Atimes for the servants. If nothing else, one of the dwellings is fated to have a large room at the lowermost part of the structure consisting of a small pool and a fountain called pool house (Hoze Khane). It was especially useful in summer as a place to pull back from the heat.

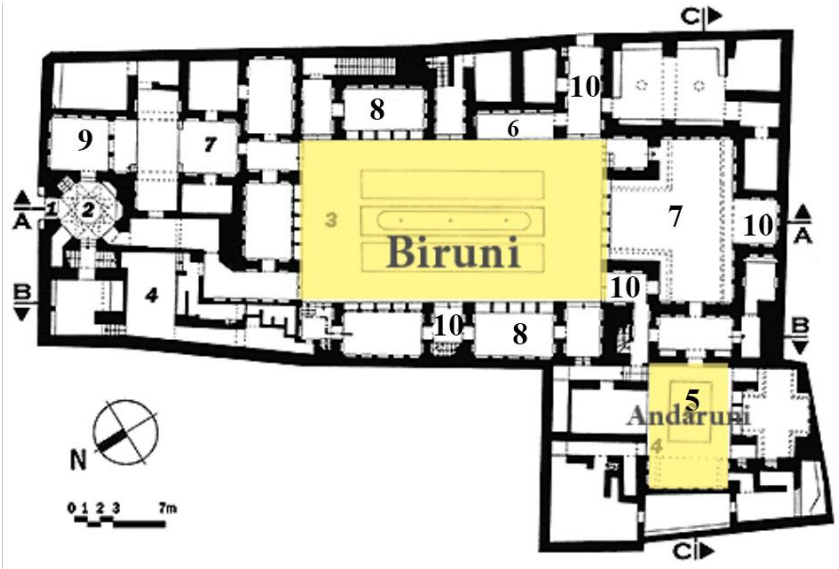


Figure 42. Interior spaces and their interrelation in Iranian traditional houses- Mehraban Gudarz House. 1- Entrance; 2- Hashti (Vestibule); 3- Main courtyard- Biruni; 4- Other courtyards; 5- Andaruni; 6- Eyvan; 7- Talar; 8- Panjdari; 9- Sedari; 10- Corridor; 11- Badgir (wind catcher). (References: URL 25)

The biruni was always much more worked out than the andaruni. This was as a result of the fact that the householder welcomed primate guest in the biruni. The *biruni* was lavished with decorations consistent with the status of the house owner. This also applied to the gardens of the biruni. As soon as a guest entered the gardens of the biruni, the guest faces principal dwelling which has the Talar (salon) where the householder received the guests. All these are proportionately related to position of the householder. Furthermore, a horse barn (Tawila) is joined to the

biruni accompanied with hostler (Mehtar) to care for the horses intended for transportation (Mostowfi, 2002). Without each compartment of the court, a lavatory is attached which a pitcher (Aftaba) had filled with water for the sole purpose of cleansing. In the compounds of wealthy Qajars a bathhouse is situated in there, because the need for purification, consequent upon which washing is demanded before prayers. The many public baths found all over the vicinity are used by those who do not have a bathhouse. The major kitchen was situated in the andaruni compound, even though, usually kitchen do exist in the biruni also. During special events and guest are to be fed in the biruni, other cooks that are not part of the household are invited (Morier, 2002). A servant was responsible to the place where foods are kept (abdarkana) was responsible to the samovar in the biruni whose duty was to provide guest with tea and refreshments. In both sections, there was also a servant in charge of another maid was responsible for the hookah which is smoked by men and women.

City-provided waters came through narrow street ducts (Juy) and are stored in water tankers (Abanbar), generally owned by each dwelling. The abanbar water served plural functions which included consumption, for cleaning, preparing food, including other needs. Near the close of the Qajar period, drinking water was also supplied by water-carriers (Saqqa), who furnished water in leather containers from house to house (Sahri,1990:98-103). Notwithstanding, the rich provided themselves with drinking water from a well dug within their compound. Furthermore, some dwellings had private underground canals (Mahdavi, 1999a). The water reservoir compartment being cool area, furnished the household with a place for preserving perishable foods.

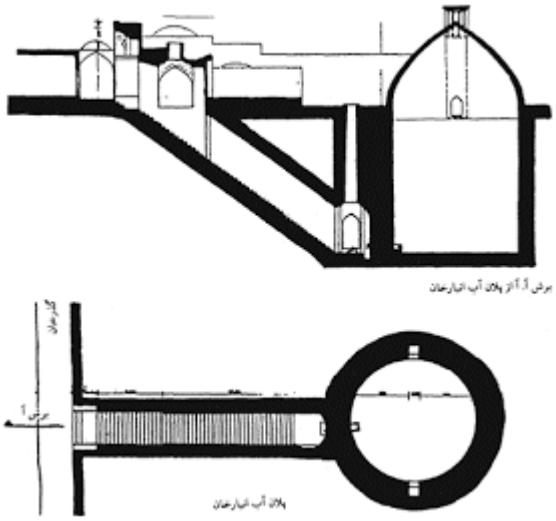


Figure 43. Plan and Section of Abanbar Khan in Kashan. (Reference URL 26).

Carpets, mattresses and cushions are used for sitting. Wall beautification was in blinds, arched recesses and mantelpieces which were either carved or in painted plaster. The recesses and mantles especially in the andaruni, were used in lieu of tables for putting object serving useful purposes. All these are kept by a servant who folds them up in the morning and put them in their places by evening. Every section of the andaruni had a room called ṣandoq-k̲ana which is where the women keeps their personal belongings. The use of spoons, knives etc. for eating were rare because food were ate with the hands while wooden spoons were however used in serving. Hands were washed prior to and after meal from the washbowl placed in the room.

Food was prepared using dry wood or charcoal. Open fireplace (Ojaq) positioned some few risers up were used, about 30 cm deep and about 20 cm wide and long (Eastwick, 1976). The principal kitchen was constructed in the andaruni and managed by the household women.

Both kerosene lamps and candles were employed in lighting the dwelling even though the candles are used on special occasions. The andaruni and the biruni used separate types of heating during winter. The andaruni was warmed by a korsi, which consisted of a wooden low table put on a brazier within which were charcoal already set ablaze and encompassed with a lot of quilt. The table was surrounded on each side with mattresses and cushions and people thrusting their legs in the quilt sat around the table. Often, they slept around it too (Farman Farmayan, pp. 19-20). Very germane to the consumption pattern of the household was their eating norms. To average medium income families, the life style was not riddled with a lot of complexities, but became more delicate for the wealthy when it required meticulous planning and skill. Their needs are provided on annual basis or every month or daily as the need arises depending on how long the items could be used before getting bad and rotten. The women were not permitted to shop outside their dwelling.

There were plethora of places in which to secure provisions. The bazar was the major place to obtain services and commodities at wholesale and retail. Specialized bazaars that trade in specific items depending on occupation are also available. (Sahri, 1990). Moreover, there are mini markets (Bazarce) in specific district and godars (subdivision of a street) where shops selling daily needed food could be found (Sahri, 1990: 323-30). The well–to-do members of the community opt to have goods brought to their home. This is indeed an opportunity for veiled and secluded female who could not freely go out (Wishard, 1904: 87-88).

Dwellings had diverse stores (anbar) to keep the items such as cheese, tea. Herbal medications for First-Aids treatments were always available at home to be used as directed by the vernacular medicine (Sajjadi, pp. 68-75).

4.7 Houses architecture in Qajar period

In general, Qajar period is known as the architecture of the house. During this period, due to the increase in urban population of Iran, the majority of governmental construction activities had switched to provide housing and shelter for the newcomers and immigrants, especially in Tehran which was the capital of Iran (Memarian, 2009). In terms of construction techniques and spatial organization, the Qajar houses are divided into three categories based on three main periods of fluctuations which happened in Qajar period.

4.7.1 Qajar houses of the first period

The houses constructed during the first period of Qajar affected by alteration in the politics and economies of that period. Most houses constructed in this epoch are similar to the Safavy houses (a period before Qajar, which is quite similar to the Iranian traditional houses) from the point of view of architectural design and organization of spaces. Like the Iranian Traditional Houses (ITH), buildings in this period are introverted. The skyline of the buildings is mostly horizontal and the stairs are not considered as the main function in building design from an aesthetic point of view (Figure 44).

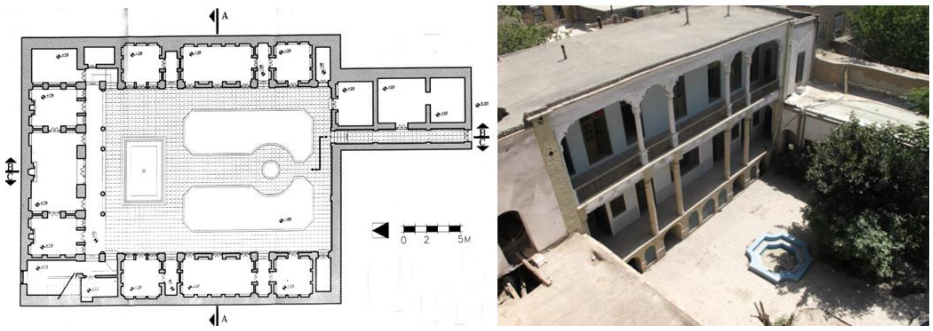


Figure 44. Motamen Al Ateba House an example of Qajar Houses in first period (Photo by Author).

In this period, stone and wood were the main structural elements of construction. Respecting to the context and contextual design was the main characteristic of houses of this period which lead to high- density context and Irregular plan of the houses.

4.7.2 Qajar houses of the second period

The roots that shaped second main changes in Qajar architecture is visible in the reign of Naser-al Din Shah. For a first time in the history, *Naser-al-Din Shah* travelled to Europe and sent Iranian students to Europe to gain their knowledge as well.

The houses which have been built in the second period of Qajar also affected by the economy of that period and the ruling power in politics. It was also a wave of Iranian westernization in that period (Moradchelleh, 2011). As a result, housings in this period were all looking for western styles in the form of imitation. Overall, the combination of western classical architecture with Iranian traditional architecture is the most important movement in shaping the identity of Qajar in the second period. At the same time, some architectural and interior design methods such as carving plastering, tile were used. Photographs, wallpaper and posters are also the most significant elements of interior design in this period.

Figure 45. Italy Embassy is one of the good example of Qajar Houses in Second Period (Farahbod, 2018).

Like the Qajar houses of the first period, each and every rooms in houses of the second period has also multiple function. In this period, due to the usage of steel in construction the space organization leads to have much more windows in the surface of the houses. Starting from the second period, elegant European Rokoko style has got it is own popularity in the interior design of the Qajar houses. Using different shape of pediments was the main characteristic of this period. The shape and form of the houses were mostly regular in medium-density context. Starting from this period courtyard eliminate from the design of the houses. It means that the houses transformed from introverted to extroverted shape. French balcony is another element which added in this period to the architecture of houses. London work paintings and wallpaper has also been used frequently in this period.

4.7.3 Qajar houses of the third period

For the first time in this period, due to the effect of technology and inspiring design ideas from European countries, Iranian architects tried to develop a new style of housing by putting summer stay rooms on top of winter stay rooms (adding second floor). Consequently, the newly developed prototype is completely extroverted. As a result, the tendency for designing the elevation of the building in order to create an aesthetically pleasing building has been increased. Furthermore, lots of new elements like staircases are positioned as an important architectural element in conjunction with the main axis of the building (Figure 46).

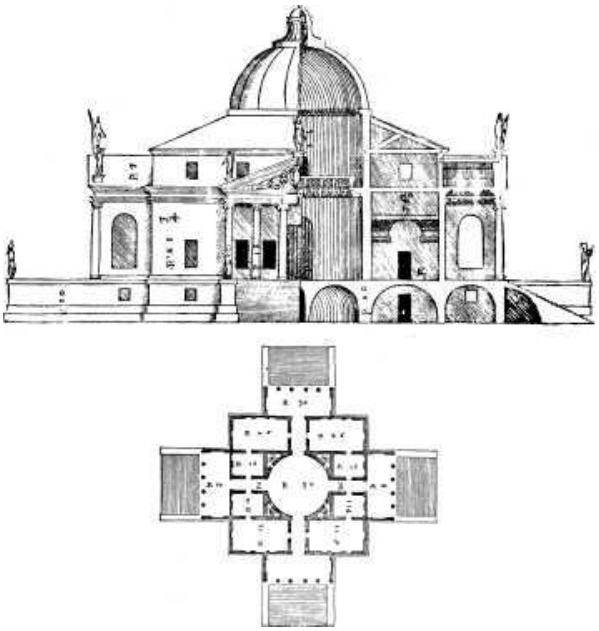


Figure 46. Plan for Palladio's Villa Rotonda. Palladian style houses throughout Europe - stairs which are in the main axes have been imitated in Qajar Period (Reference: URL 27).

In the late Qajar, inclusive porch which used to shape the elevation of Iranian traditional houses is substituted by smaller and single projected porches. Consequently, the axial configuration of the houses is changed and stairways were located in parallel with the main axis of the building (fi Figure gure 47).

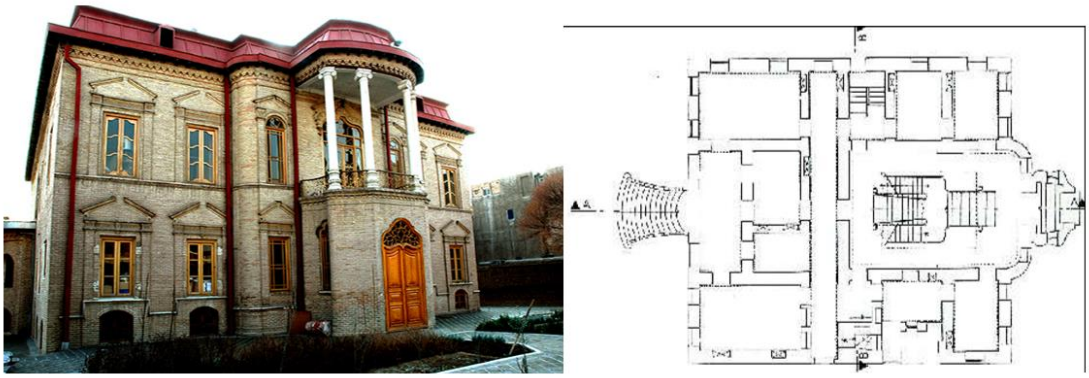


Figure 47. Pirniai House an example of houses in the Third period of Qajar Houses (Farahbod, 2018).

In this period, each and every rooms of the houses had its own function and they were not flexible enough to adopt new functions. Mostly all- around the building had a balcony. In

this period buildings were completely detached from the context and London work paintings and Wallpaper had been frequently used in this period. Generally, based on all of the explanations in this chapter, Table 7 illustrates the typology of Qajar houses in three main classifications.

Table 7. Typology of Qajar Houses based on the main indicators of identity in architecture.

	First period		Second period	Third period
Spatial organization	Each space has multiple functions.		Each space has multiple functions.	Each space has just one function.
Semantic relationship	Mixed traditional and European.		Elegant European Rokoko style /less consumption of Volumetric decorations.	Geometric decorations inspired from western countries.
Shape and Forms	**Structure**	Arched roof (Brick or stone)	Mostly Horizontal	Horizontal (Wooden)
	Skyline	Horizontal	Horizontal Using different shape of *pediments*	Broken Skyline *(Pediments are semicircle)*
	Shape	Contextual design (Irregular plan) in high- density context	Mostly regular in medium-density context	Regular plan /Freestanding Low-density context
General Design Principles	**Introversion**	Inward-Looking *Courtyard houses*	There is no courtyard (Outward-looking buildings)	Outward-looking residential complexes with a shared courtyard.
	Veranda	There is a porch with courtyard.	There is a veranda or balcony	Mostly all- around the building has a balcony
	Stairs	Stairs has less priority from the aesthetic design point of view.	The stairs are in the main axes of the building.	The stairs are in the main axes of the building.
	There is no designed central entrance.		The centrality of buildings with pillars and columns.	The centrality of buildings with pillars and columns
	Constructing residential buildings without having plans, section and elevation of it.		- Design of plans started for houses.	-mostly all of the residential building had Strategy to start construction.
Building Materials	**Structure**	Stone, wood	Stone, wood	Stone, wood, Iron.
	Windows	-	Started to use colored glasses	Mostly colored glasses
	Painting	-	London work paintings and Wallpaper	London work paintings and Wallpaper
Relation with Context	Buildings are integrated with each other with just one entrance.		Semi- detached buildings.	Detached buildings.

The following feature of Qajar architecture has been revealed that it tried to distinguish itself with the traditional Iranian houses therefore leading to the conclusion that the identity of Qajar period added a new interface to the identity of traditional Iranian houses and these features have been transferred to even contemporary housing design. According to some experts (Bahramzade and Heidari, 2012; Bashir, 2000; Habibi, 1999), the most important architectural feature of the Qajar houses is the miniaturization of the porch which means that the architecture itself is seen as decoration. In the architecture, the work has been considered as a decorative object that each part of it, such as windows and doors own much art, small colored states with a decorative load (Bahramzade and Heydari, 2013). It should be noted that in the late Qajar and along with the Iranian familiarization with the trappings of contemporary technology such as wallpaper to reduce costs and save time by using photos and wallpaper in several historic homes (like Colonel within the House and leather) can be observed. Overall, in terms of building construction, the houses are divided into three categories (first, second, third period) and the segmentation criterion occurs in the homes of the third period of the Qajar period, including different architectural structures (often in the form of the vaulted roof, flat place falls) and ornamentation. It should be noted that in all the Qajar houses there is a strong link with the previous tradition and architectural principles. Many elements, such as the vestibule, corridor and a central courtyard, houses were a complete continuation of earlier traditions, even in various spaces dedicated to houses around the courtyard, there is not much difference from past experiences (Bahramzade and Heydari, 2013).

Chapter 5

INTEGRATED FRAMEWORK TO EVALUATE IDENTITY OF QAJAR HOUSES

This chapter developed based on the theoretical findings and debates in the earlier chapters to present a framework to assess and categorize the indicators of shaping identity of architecture in Qajar period. The proposed framework in this thesis is prepared in a way that it creates an opportunity where it can be applied in each and every housing type of Qajar period.

5.1 Internal and external factors affecting identity of Qajar period

The study on the theoretical framework of this research revealed that identity of architecture could be influenced by four two main factors which have been divided in this thesis into internal and external factors.

5.1.1 Internal factors affecting identity of Qajar period

Factors that are taken from Iranian traditional architecture from the past. These factors like unwritten principles of construction have been used in Iranian traditional houses and passed through our ancestors and completely embedded in the culture of Iran which might also consider as the identity of Iranian architecture. This factor, which is most recognizable in the first period of the Qajar period. Climate and geography are also other factors which have been considered as internal factors of shaping identity of Qajar Houses. As it can be seen from the definition of internal factors “Believes of a society”, “Values”, “Norms Religion”, “Geography” and

“Traditional design principles” are other internal factors in shaping the identity of architecture.

5.1.2 External factors affecting identity of Qajar period

Externally driven factors shaping the identity of architecture refers to external factors from outside of the context which directly affects the context leading to changes in the identity of architecture. It is revealed from this study that the majority of factors forming the Qajar architecture are the external factors which include factors that were taken from foreign cultures especially Western countries. This is indicative of the fact that culture can be dynamic due to the effects of temporal changes. Regarding social, political and economic changes in Qajar period, in the process of the governments’ collaboration with the Western countries, the culture of Iran was significantly affected, therefore its identity became influenced by the Western culture. Some of the factors which led to the dominating influence of the western culture on Iranian architectural identity have been identified in this study as externally driven factors, they are described as follows:

a) In this period, the ruler of Iran made lots of travel to the West and they brought new ideas and technologies to implement directly in the context of Iran.

b) Dar UL-Funun (new school in Iran based on European principles of design) considered as the spring board of modernization in Iran with the help of newly graduated architecture students from abroad it was able to spread.

c) Qajar Government employed many Armenian and Russian architects to construct building with the new identity.

d) Modernization attempt, entrance of cars, using electricity.

Overall, the Figure 48 reveals the internal and external factors working parallel with each other in shaping the identity of architecture, Figure 48 have been organized based on internal and external factors shaping Qajar houses as well as geographical, economic, political and social factors. The indicators in different culture might have different characteristics.

Figure 48. Internal and external Factors affecting identity of Qajar houses.

5.2 A framework for assessing the identity of Qajar houses in Tehran

As it was described already the main aim of the study was to introduce comprehensive framework to assess the identity of architecture in Qajar period. Before focusing on Qajar period, it is necessary to understand the overall structure of factors shaping the identity of architecture. Figure 5 in chapter 2 reveals that identity could be classified in two parts, namely, public and private. Since the main aim of this research is to focus on houses in Qajar period, therefore the public part of identity which represents culture is the main concern of this research.

The study on this thesis revealed that the overall understanding of identity might be divided into seven main classes (1-Temporal changes, 2-Semantic relationship, 3-Spatial Organization, 4-General Design Principles, 5-Form and Shape, 6-Building Materials, 7-Relation to context). These classifications are also applicable in Iranian traditional houses. The major difference in distinguishing identity of architecture in each culture comes from people's social, political and economic concerns due to the dynamic nature of identity which might lead to different forms and spatial organization in architecture. From the other hand, due to the ideology of people in Iran, the term privacy has been considered as the main factor in spatial organization of space. In this regard, by considering the specific climate of Iran, especially in hot and dry climate, the architecture of traditional Iran leads to specific circulation and organization from the public to the private spaces. Which has direct relation between open, semi open and closed spaces.

The framework for assessing identity of Iranian traditional houses would also be applicable in Qajar houses. But the main difference which needs to be considered is temporal originating. This is so because of the dynamic nature of identity resulting from the different social, political and economic concerns of each period leading to different identity.

The study in this thesis, classification and understanding of architecture of Qajar, revealed three different periods in architecture of Qajar house. Since the social, political and economic concerns was controlled by the Qajar period so we can see these three classifications in all regions of Iran. The other indicators of shaping identity of architecture observed the same with the indicators of Iranian traditional architecture. Meaning that we can also use the same framework for Qajar period, but it just needs to alter temporal changes accordingly.

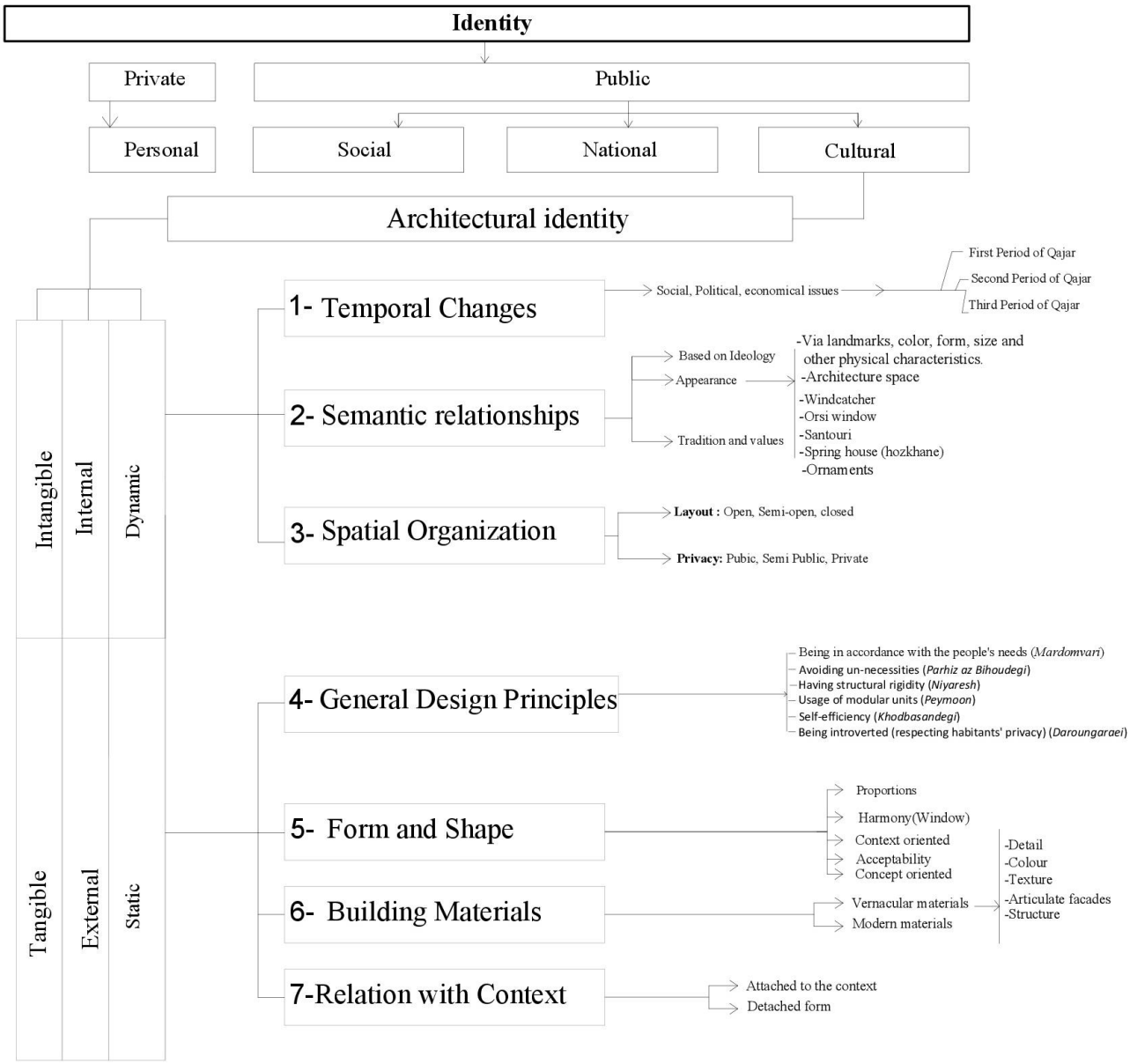
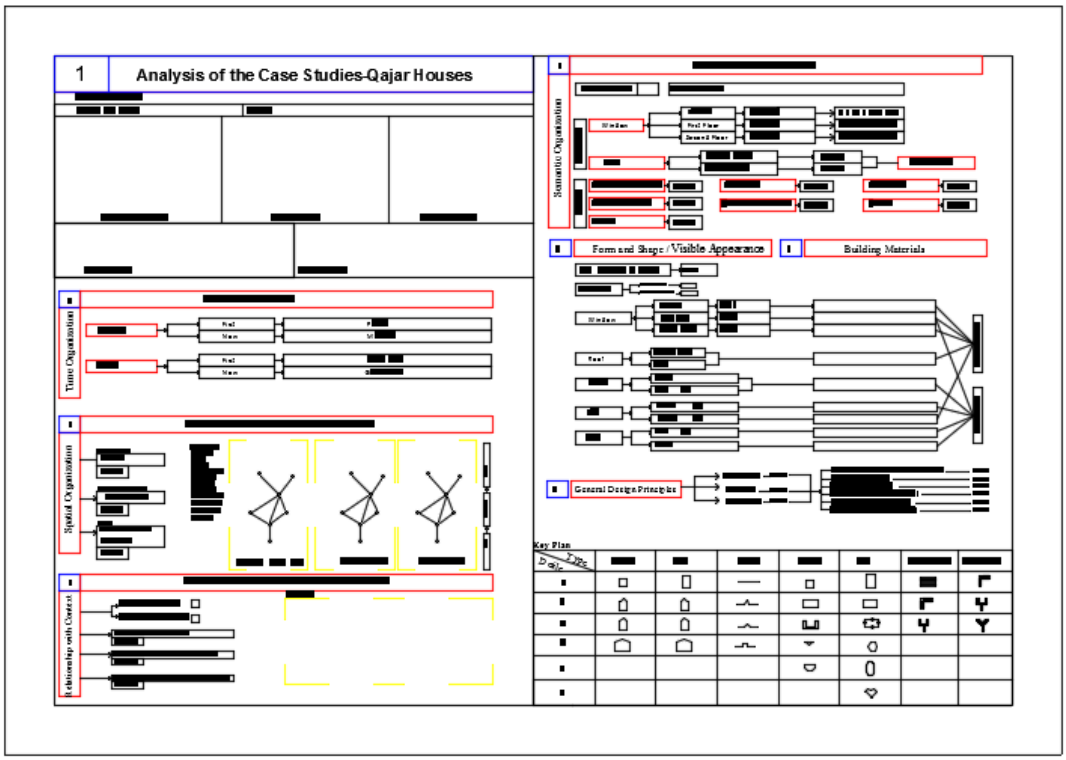


Figure 49. A framework for assessing the identity of Qajar houses.

To be able to apply the following framework to the context the study developed more comprehensive and conductible framework. As it is illustrated in the following framework, the main factors in shaping the identity of architecture have been classified based on their essence in seven main parts.

Table 8. Comprehensive framework to assess the identity of Qajar houses (Developed based on Farahbood, 2017).



5.3 Tools to apply to the proposed framework to assess the identity of traditional Qajar Houses

Considering the definition of identity in architecture there might be both qualitative and quantitative approaches in assessing the indicators that shape the identity of architecture. In this regard, qualitative methods of assessment of the identity will refer to non-numerical approach of assessment. Such as methods of the investigations of space organization and its changes in different periods of Qajar or even documentary analysis of indicators of shaping the identity, or even semantic assessment of the architectural elements and its changes in different part of Qajar period will be part of the qualitative study. The other part relates to the quantitative approach to design. Table 9 shows the applicable tools to use when applying the proposed framework in Qajar houses.

Table 9. The applicable methods to apply the proposed framework in Qajar houses.

	Indicators	Tools of Assessment
Temporal Changes	History and background	Historical data , Archival Data, secondary sources
	FUNCTION	Historical data , Archival Data, secondary sources
	OWNER	Historical data , Archival Data, secondary sources
Semantic Relationships	Number of Floors	Photographs / Site Survey
	Concept of design	Site Plane / Plans / Elevations / Site Survey /photographs
	Color	Site Survey /photographs / Observation
	Ornamentation	Site Survey /photographs / Observation/ Elevations
	Spring House (hozkhane)	Site Survey /photographs / Observation/ plans
	Pool in front of house	Site Plan /photographs / Observation/ plans/ measurement and proportion
	Garden	Site Survey /photographs / Observation/ plans / measurement and proportion
	Windcatcher	Site Survey /photographs / Observation/ Elevations
	Column as ornamentation	Site Survey /photographs / Observation/ Elevations
	Orsi window	Site Survey /photographs / Observation/ Elevations
	Sanitary	Site Survey /photographs / Observation/ Elevations
Spatial Organization	Introverted / Extroverted	Site Plane / Plans / Elevations /photos
	Designed for Privacy	Plans /photographs / Site Survey / Observation
	Designed based on historical context	Plans /photographs / Site Survey / Observation / Historical data , Archival Data
	Space Organization from public to private	Plans / Site Survey / Observation
	Define hierarchy in interior space organization	Plans / Site Survey / Observation
Relationship with Context	Define hierarchy from public to Private	Site Plane / Plans / Site Survey / Observation
	Attached to the Context	Site Plane / Plans / Site Survey / Observation
	Detached from the Context	Site Plane / Plans / Site Survey / Observation
	Traditional approach to the Context	Historical data /Site Plane / Plans / Site Survey / Observation
	Solidarity between the building and environment	Site Plane / Plans / Site Survey / Observation
	Visual cohesion between the building and environment	Site Plane / Plans / Site Survey / Observation
Form and Shape / Visible Appearance	Overall Shape	photographs / Site Survey / Observation / elevations
	Form consistent in culture	Site Plane / Plans /Elevations/ Site Survey / Observation / photos
	Window	Elevations/ Site Survey / Observation / photos
	Skyline	Elevations/ Site Survey / Observation / photos
	Balcony	Plans /Elevations/ Site Survey / Observation / photos
	Stair	Plans / Site Survey / Observation / photos
	Pool	Site Plan / Site Survey / Observation / photos
Building Material	All the elements and the materials	Site Survey / Observation
General Design Principles	Concept-oriented / Context-oriented	Site Plane / Plans /Elevations/ Site Survey / Observation / photos
	Being in accordance with the people's needs	Site Plane / Plans /Elevations/ Site Survey / Observation / photos/ interview
	Avoiding un-necessities	Site Plane / Plans /Elevations/ Site Survey / Observation / photos/ interview
	Having structural rigidity	Site Plane / Plans /Elevations/ Site Survey / Observation / photos/ interview
	Usage of modular units (*Peymoon*)	Site Plane / Plans /Elevations
	Self-efficiency (*Khodbasandegi*)	Site Plane / Plans / Site Survey / Observation / photos/ interview
	Being introverted (*Daroungaraei*)	Site Plane / Plans / Site Survey / Observation

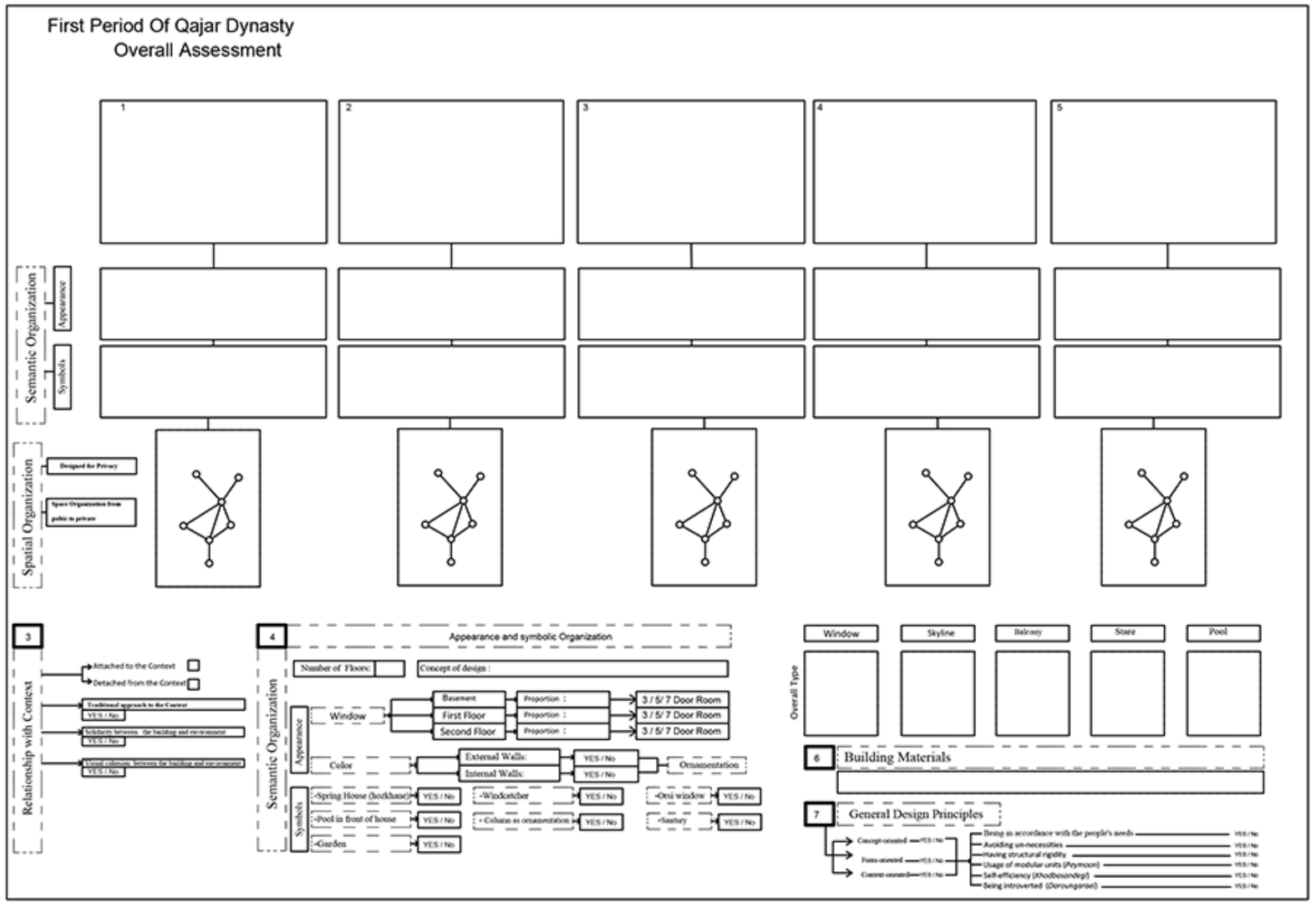
By applying the developed framework of identity of architecture in this thesis and proposed methods, assessment of the indicators shaping the identity of Qajar houses can be made. The study tried to apply the framework in the Qajar houses of Tehran, which is illustrated in detail in (See Appendix B). In this regard, the study revealed that the indicators shaping the identity of architecture could be classified in three main parts (Qajar houses of the first, second and third period). Social, political and economic changes due to dynamic aspects of identity is another factor which gave a boost to this classification. Also, the assessed cases studies in this thesis (See Appendix B) clarified in detail the selected case studies of Qajar house. Observation and research on 68 existing buildings in Qajar period and filtration of the buildings based on developed framework to assess the identity of Qajar houses (in this thesis) revealed the possibility of classification on the Qajar houses in three main parts. Accordingly, from each period five houses had been selected to have in-depth research. The main reason of selecting five houses from each period is the similarity of the houses in every period. The following paragraphs explain the structural and organizational characteristics of each and every classified section of the Qajar period.

Table 10, 11, and 12 classifies the houses based on their common characteristics which leads to shape the identity of Qajar houses in three main periods. Table 10 illustrates Qajar houses and their characteristics in the *first period of the Qajar*. As it can be seen from the Table, all plans and its spatial organization following traditional patterns of construction. All buildings have ground floor plan and basement. Their organization of the spaces like the traditional Iranian houses has been classified into two main parts which lets to its residents to move the other part of the building in the winter time to get more sun. Like the other traditional houses contextual design approach is another main characteristic of Qajar houses. In this regard, buildings

have been designed in a way that to integrate with each other. There are some alleys with the cul-de-sacs which leaded to the main entrance of the house. The notion of privacy due to the people's religion was also an important factor in spatial organization of houses. Considering this fact, as it has been illustrated in Table 10, there are recognizable hierarchy of public space to semi-public and private space (such as bedrooms). In this period, shape of the windows was always rectangle or square and WC has also designed outside of the houses like in Iranian traditional houses. Houses of the first period of Qajar doesn't have any other extra ornamentation and decoration in the interior and exterior walls.

Considering the sections of buildings in this period, it is needed to mention that the skyline of the buildings was completely flat. Overall, in this period architects tried to respect to their traditional principles of construction.

Table 10. Classification of Qajar houses in the first period.



The second period of Qajar has undertaken of many social, political reformation due to travel of Nasser-Adin-Shah to Europe. He tried to inject the same lifestyle and methods of living and construction which he saw in European countries to Iranian people and to their lifestyle. Despite of the fact that at the beginning he had a serious problem with the religious people who didn't let him to do his social and political reformation, but nowadays we can see that all the reformation which Nasser-Adin-Shah injected to its community have been so called the "beginning of modernity" in Iran. Considering this fact, in the second period of Qajar, we can easily see the method of housing construction has got its own characteristics which was far from the Iranian traditional houses. In this period, ornamentation of both inside and external part of the building has been dramatically increased.

Figure 50. Interior decoration of Mostufiolmamalek house belong to the second period of Qajar (URL 28).

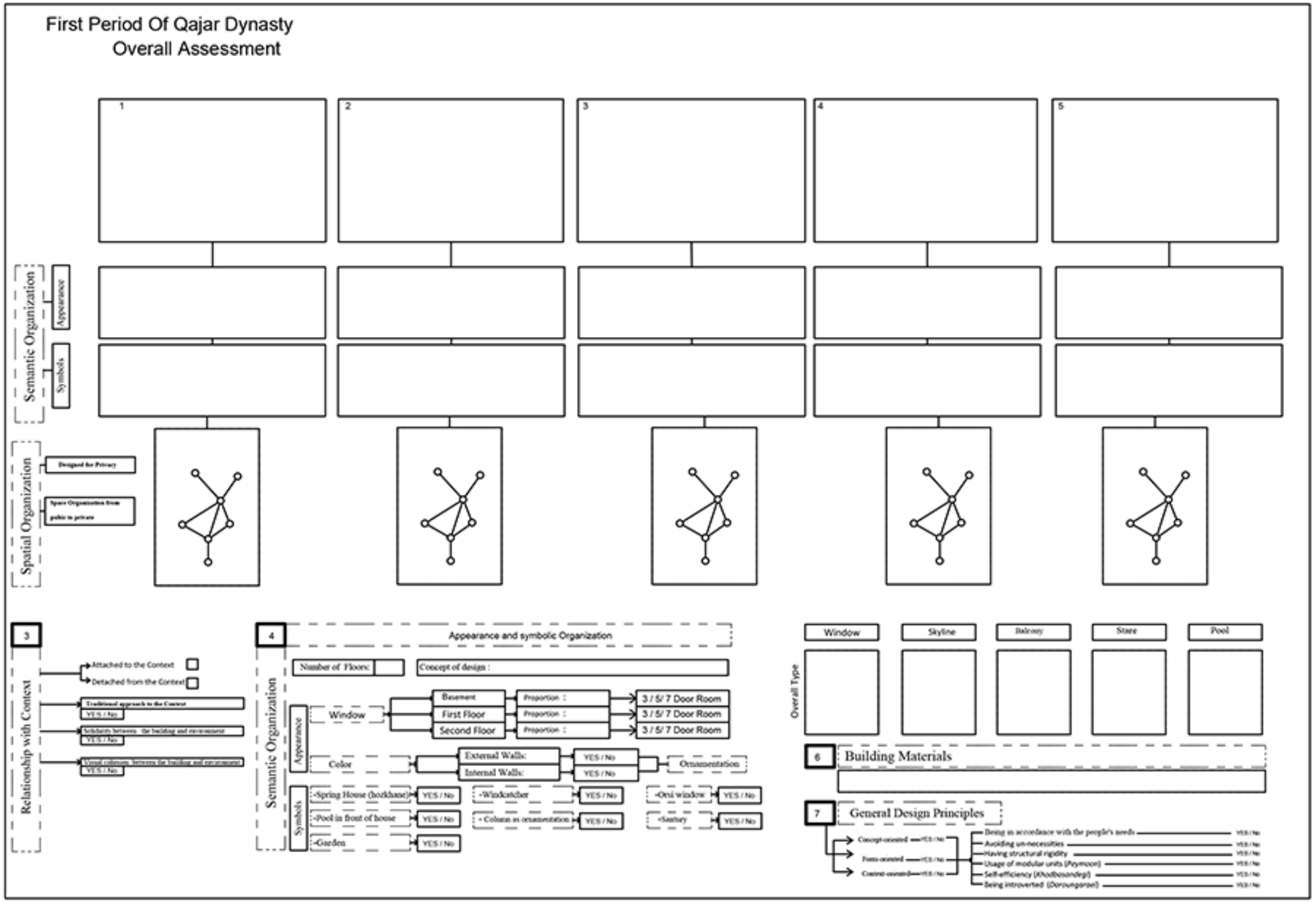
Figure 51. Exterior ornamentation of houses in Qajar period- Mostufiolmamalek House belong to the second period of Qajar (URL 29).

The notion of privacy has lost its traditional meaning and we can see that the buildings detached from its context and buildings become extroverted. Considering spatial organization, we can also see that traditional hierarch from public to privet spaces has also lost its meaning. For the first time in this period, we can see that WC have been designed inside the houses. In this period houses have been designed in the one direction as a result of this approach, traditional method of designing to live in the northern part of the building in winter and vice versa has lost its meaning. Apart from the first period, which they used simple shapes such as a rectangle and square in designing pools, windows, we can see that in the second period variety of geometrical shapes have been used in design pool and windows.

Ornamentation and decoration in the third period of Qajar has reached to the heist level which haven't seen in the previous periods. That's why it can be concluded that the artificiality and aesthetic appearance of the buildings has become an important element in construction of the third period of Qajar.

Finally, Table 11 illustrates in detail the overall assessment of Qajar houses in the second period.

Table 11. Classification of Qajar houses in the second period.



The third period of Qajar followed the principles of social, political reformation of Nasser-Adin-Shah. Increasing ornamentation both inside and outside of the building and using wall paintings with different colours both inside and outside of the houses increased aesthetic value of the buildings. There are many critics for this aesthetic value which they believed that these aesthetic values, ornamentation and wall painting are all artificial. They believe that the traditional design approach of housing, which had innated aesthetic values due to hierarchy in space organization (by respecting people's religion and believes) has completely disappeared. The third period of Qajar has also followed the same principles of construction which established in the second period. Using a variety of shapes in pools and windows with a variety of colours leads to and specific style which has its own identity and was far from traditional approaches of housing design. In this regard, windcatchers which were the symbol of Iranian traditional houses has completely eliminated in the third period of Qajar houses.

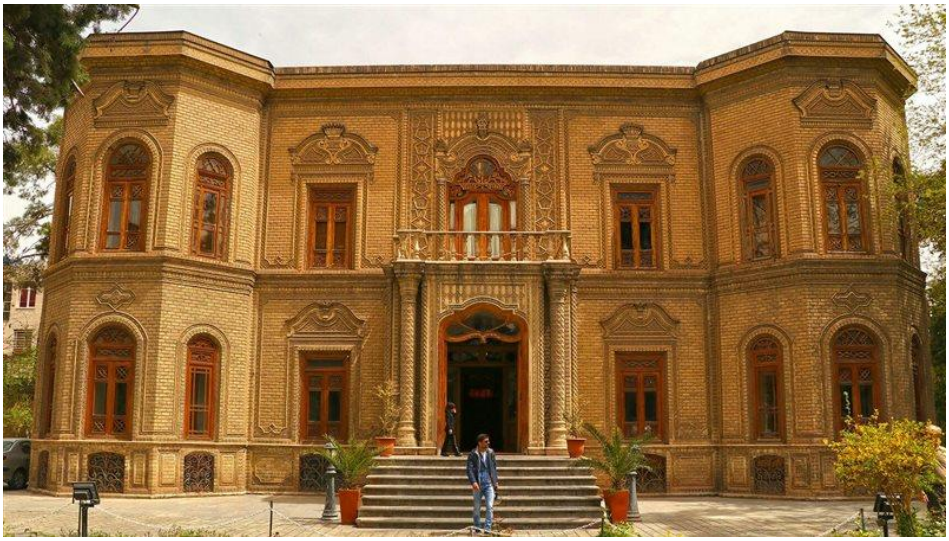
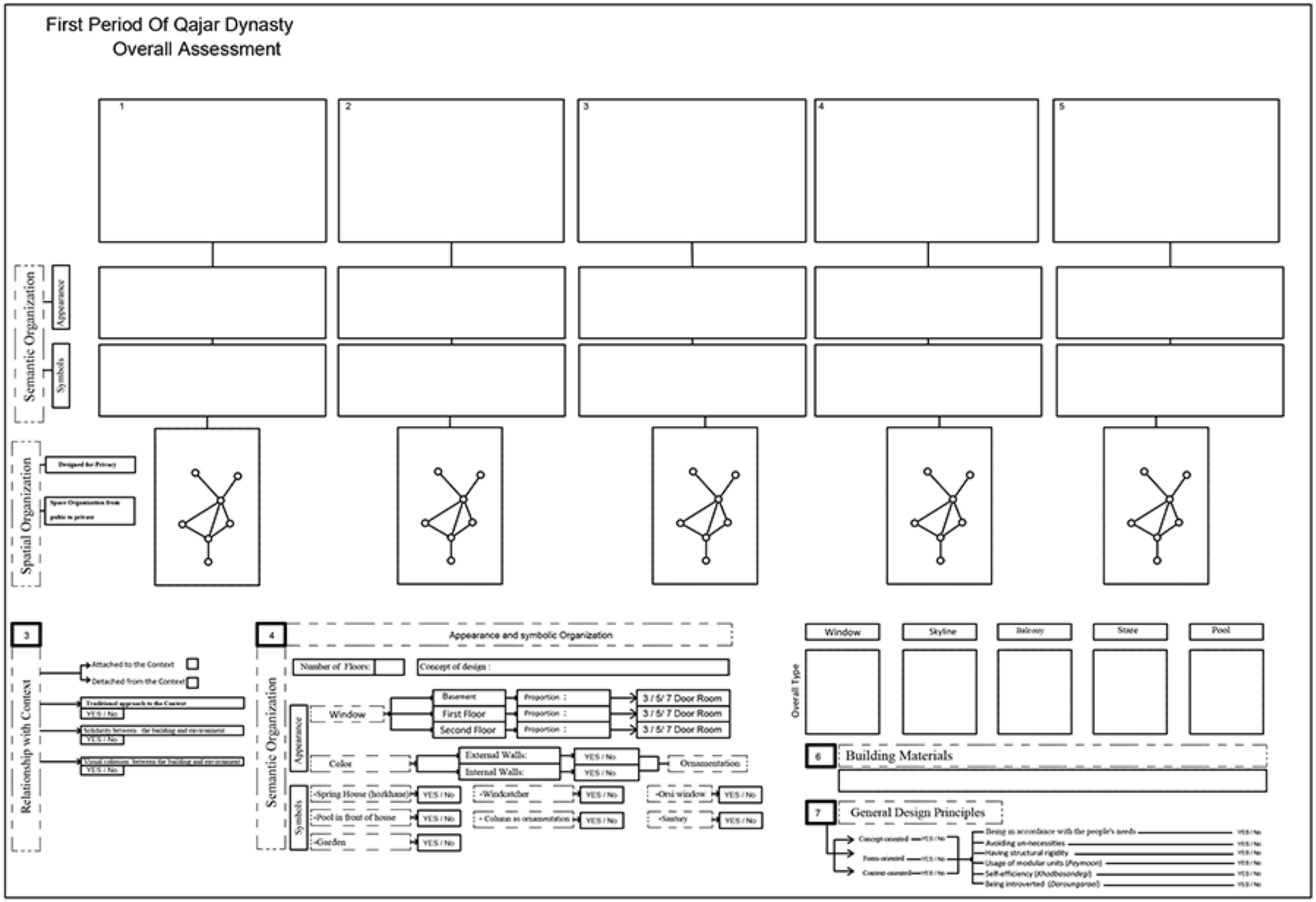


Figure 52. Abgine House. third period of Qajar (Photo by Author).

Figure 53. Abgine House. interior decoration and ornamentations. Abgineh museum (URL 30).

In this period ornamentation on Santury and Orsi windows increased until it reached in a point that we called Santury and Orsi windows as specific symbolic elements which representing the identity of the Qajar period. Finally, Table 12 illustrates in detail the overall assessment of Qajar houses in the third period.

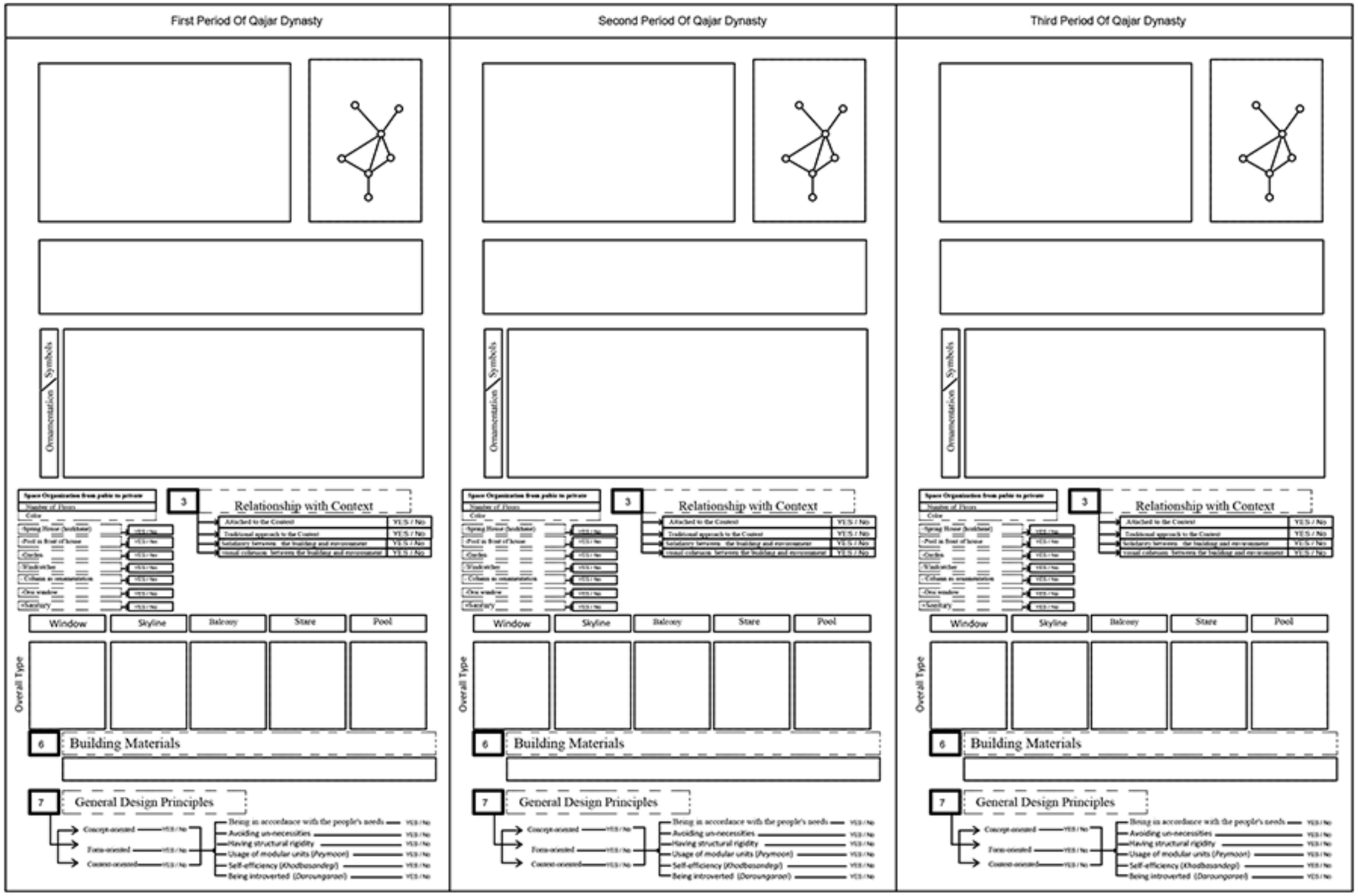
Table 12. Classification of Qajar houses in the third period.



Based on the main indicators shaping the identity of architecture and the studies in this chapter, the possibility of classification of it in three main parts is achievable. In this regard, it can be seen that the buildings which were built at the same period have approximately the same identity in terms of material usage, methods of construction and space organization. Table 13 illustrates in detail the three main periods and their architectural characteristics as well as their possible differences. It also reveals the overall transformation of the term identity from first to the third period.

As it is described previously, starting from the first period to the third, due the social, political, economic and technological reformation in Qajar period, people's lifestyle and even the traditional principles of construction have been completely changed. The amount of this alternating was in such a way that nowadays we cannot see any new construction which follows the traditional principles of construction. As it illustrated in Table 13 the new concept of street introduced for the first time to the people's life in Qajar period. Wagons which have been carried by horse changed the meaning of privacy both in public and private spaces. The majority of houses spicily for ordinary building have been constructed along with the streets (that's why this period has also been called as street architecture). As it is revealed in the general design principles of each period, we can see that apart from avoiding unnecessities and general design principles all the general design principles of traditional Iranian houses have been transformed to the other period which named as Pahlavi period (1925-1979).

Table 13. Overall transformation of the term identity in Qajar houses.



5.4 Assessing identity of the traditional Qajar houses

As it illustrated in the Table 9, 10, 11, 12 it is revealed that the buildings of the first period of Qajar were more introverted. Meaning that the design principles of construction were quite similar to the Iranian traditional design and construction. In this regard, the hierarchy of space organization from public to private are quite visible. It also revealed that in the second period of Qajar houses the buildings were designed such that they were both introverted and extroverted. Astonishingly, in the third period of Qajar houses all the buildings were designed with the concept of extroverted design.

5.4.1 Identity of Qajar houses based on dynamic aspects

5.4.1.1 Temporal Changes

As it has already been explained the notion of "time" is the main concern of temporal changes which leads to change in identity. In this regard, radical changes in Qajar period due to social, political and economic alterations and other externa factors which have already been discoursed, leaded to changes in the methods of construction of the Qajar house. By the passing of time, all these changes in methods of construction of houses has been directly effects in changes in the identity of houses. The study in houses of Qajar period revealed that the identity of Qajar houses can be classified in three main periods.

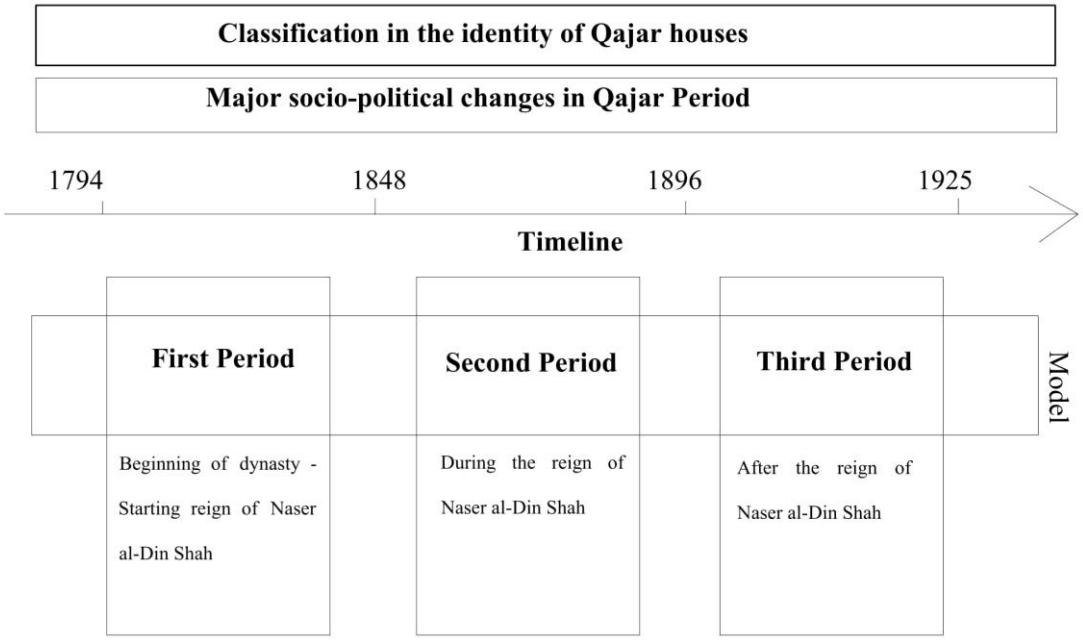


Figure 54. Classification of the term architectural identity based on the dynamic aspects.

5.4.1.2 Semantic interpretation of Qajar Houses

Santouri is the main semantic element shaping the identity in Qajar house which have been introduced for the first time in this period. The study on Sanctuaries of Qajar houses in Tehran revealed that there were a variety of them, which exposes different shapes for the building, especially in the first and second period of Qajar houses. *Santouri by considering the overall shape have been used exactly in symmetrical order in the aesthetic design of Qajar houses in the third and second period.*

Figure 55. *The shape of the roof based on symmetrical design* has been considered as an aesthetic organization of the elevations in Qajar period.

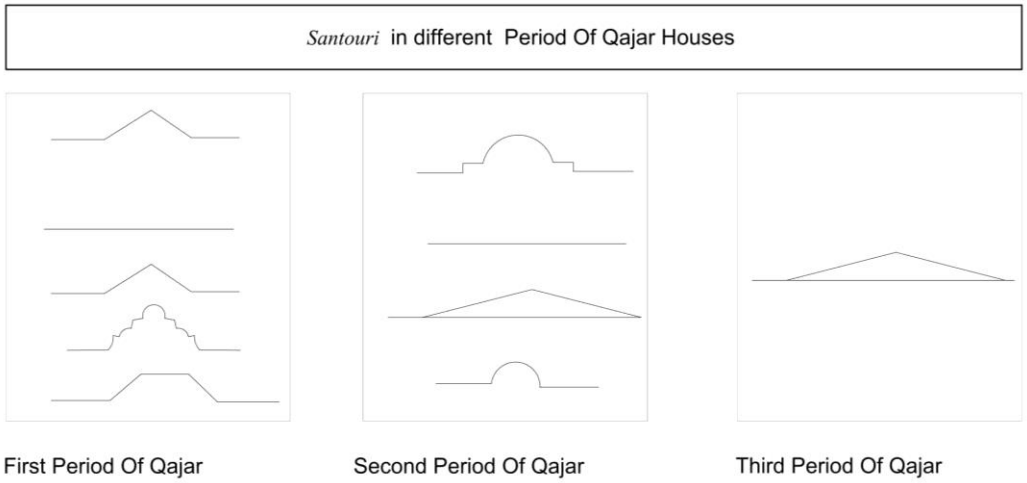


Figure 56. Different types of Santouri in different period of Qajar houses.

Orsi windows: are other semantic elements of shaping identity in Qajar houses which have been inherited from the traditional Iranian houses. The study revealed that just in the first period they used Orsi windows. From the second period *Orsi windows was rarely used which led to its complete disappearance from the identity of contemporary housing design.*

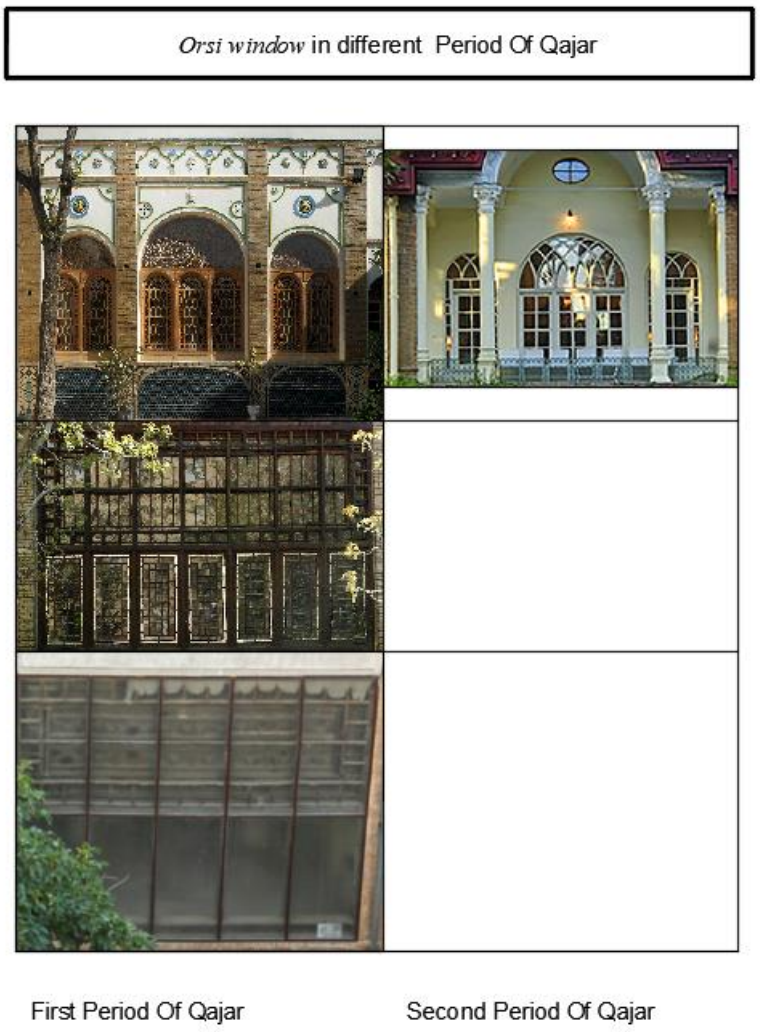


Figure 57. Orsi windows in different period of Qajar houses.

Columns and ornamentations: the study in this thesis revealed that the second and third period of Qajar houses had more "Columns and ornamentations" than the first period. As it is mentioned previously, the first period of Qajar houses tried to pay respect to its tradition and context.

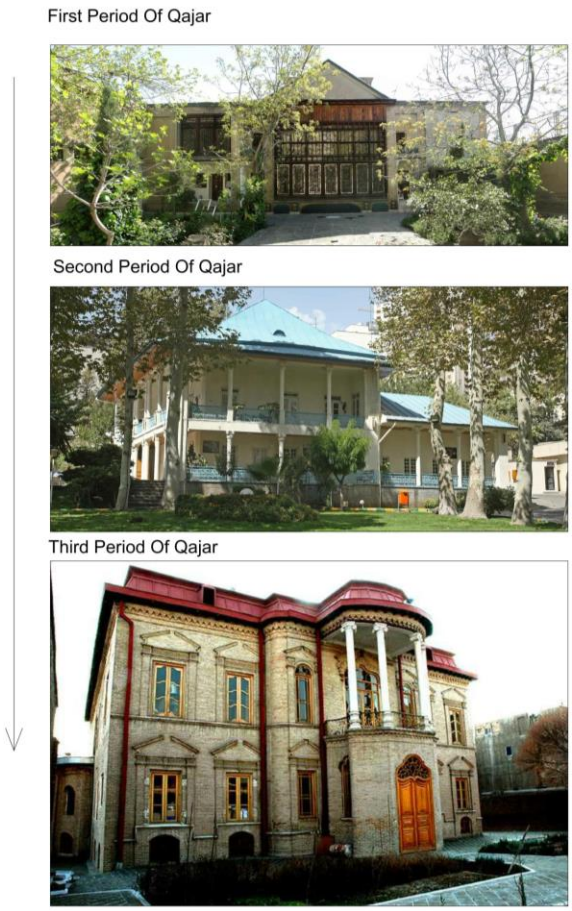


Figure 58. From simplicity in the first period to the more ornamentation and detail in the third period of Qajar houses.

Figure 59. Ornamentation and detail has been reached in to its highest level (from aesthetic point of view) in the third period of Qajar houses. E.g., Abgineh House (Photo by Author).

Windcatchers: is the greatest symbolic element of traditional Iranian houses. Unfortunately, apart from the rare cases in the first period of Qajar houses, in the second and the third period there is no other reference to *Windcatchers*. Accordingly, the beginning of the disappearance of Windcatchers from the main body of the building can be interpreted from this period.

Figure 60. Evidence of Windcatchers are just in first period (Farahbood, 2017).

Garden: As it is already mentioned, since the houses in the first period were more introverted, there was no garden around the house. But in the second and third period since the building was detached from the context, the houses became surrounded with trees and green area.

Pool: pool is the most representative element of traditional Iran houses which have been used in all the period of Qajar houses. The shape of the pool in the first period was completely square or rectangle. In spite of the fact that there was some other

example of pools with different forms in the first period, the study revealed that it has been amended after or even a period after that.

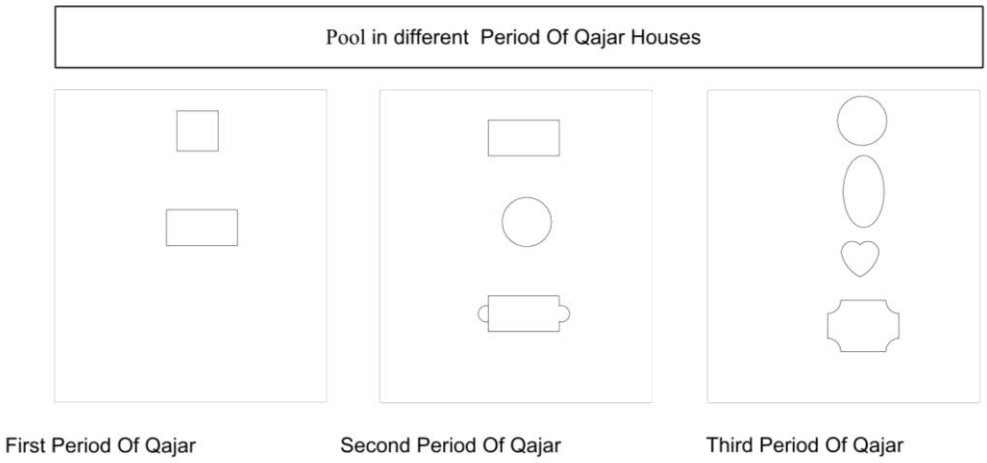


Figure 61. Typology study of pools in front of Qajar houses.

5.4.1.3 Spatial organization and Qajar houses

Traditionally, the space organization in houses in Iran has been structured based on people's beliefs, culture and climate. Islamic religion by considering the term privacy gave the main skeleton to the organization of spaces which led to the definition of hierarchy from public to private spaces as have been already explained in this thesis. As it is illustrated in fig Figure 62, the spatial organization of house in the first period of Qajar is quite similar to the traditional space organization in Qajar houses. Starting from the second period, architect's design based on western houses, the simplicity in design overcome to the term privacy. In despite of the fact that simplicity was the major concern in the third period of Qajar but architects in this period tried to respect the traditional concern of privacy in design.

The other factor which used in the assessment of buildings is to determine whether the spatial organization of the building is introverted or extroverted. The first period

of Qajar houses tried to pay respect to its culture and the design principles of Iranian traditional houses. That's why we can see that all the buildings in the first period are introverted meaning that all the spaces have been organized around the courtyard. But in the second and third period of Qajar houses, the term courtyard had been removed from the literature of Iranian traditional houses and buildings tend to be extroverted.

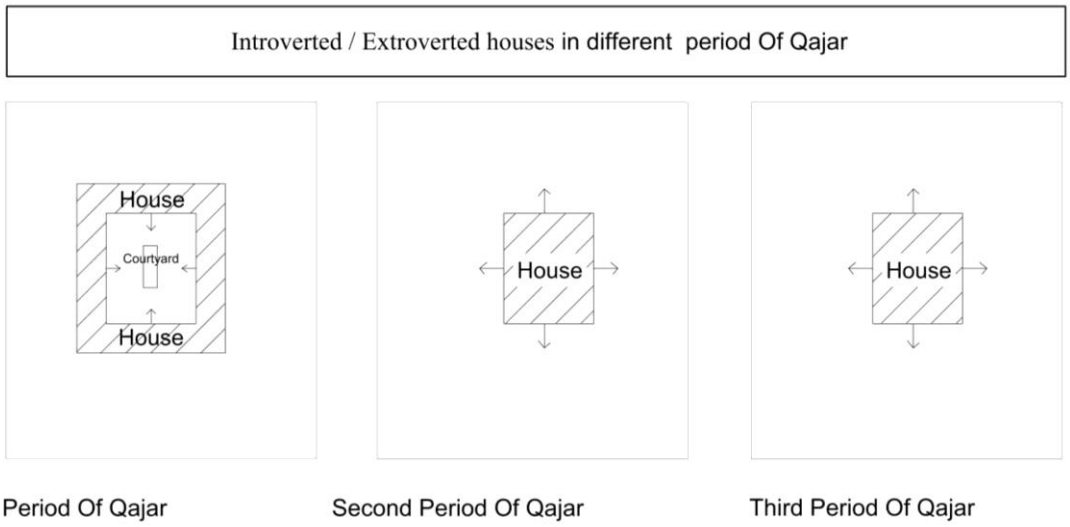


Figure 62. Schematic illustration of Qajar houses in different period –the hatched part are the houses.

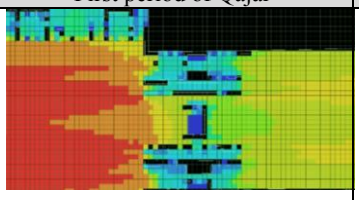
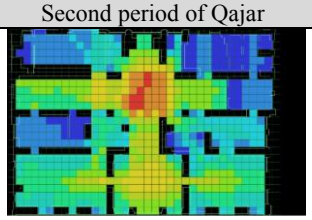
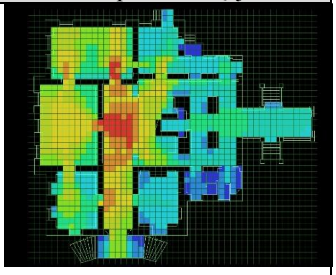
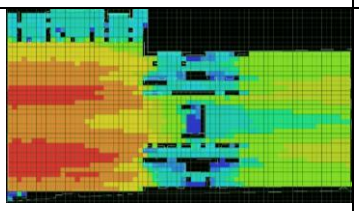
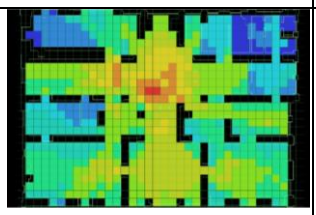
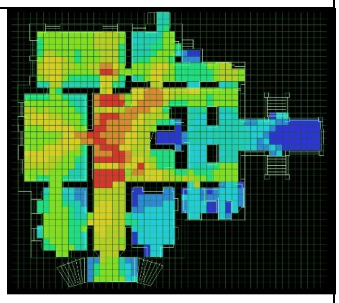
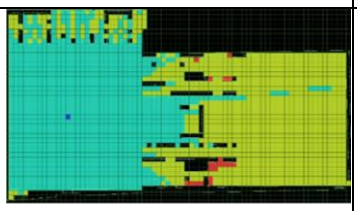
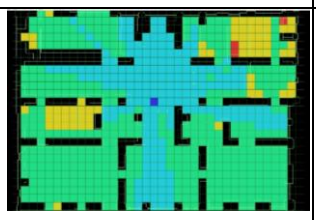
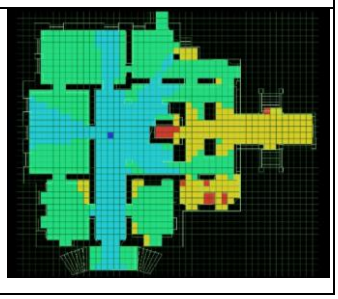
Besides, there are some changes in the spaces inside the house. For example, toilets in the first and second period was outside of the house and in the third period it came and found its space inside the house.

5.4.1.3.1 Connectivity Analysis of Qajar houses

To be able to assess the identity of houses in different period of Qajar, three houses from each period of Qajar has been selected. From the first period of Qajar, Ghavam House and from the second period of Qajar, Italian embassy and from the third period *Teymor Tash* House has been selected. Then, by using depth map software it has been tried in to assess the level of the connectivity, visual integration and the

level of depth in the selected cases of Qajar period. Since the changes privacy has direct effect on the identity of a house, the main reason of connectivity analysis is to assess how privacy changes from one period of Qajar to the period. The outcomes of the assessment have been illustrated in Table 14.

Table 14. Connectivity Analysis (Depth map) of three house of Qajar period.

	Ghavam House First period of Qajar	**Italian Embassy** Second period of Qajar	**Teymor Tash House** Third period of Qajar
Connectivity			
Visual integration			
Visual Step Depth			

a) Connectivity analysis of the three cases studies: In the Ghavam House (first period of Qajar), high-connectivity is observed in the yards and corridors. Whereas, minimum connectivity is observed in the bedrooms and storerooms. The outer yard in the first case has lover connectivity than the inner yard. The main reason of highest connectivity in the inner courtyard is due to interrelation between two main parts of the house. In the case of Italian Embassy (second period of Qajar) it has been

realized that highest connectivity can be observed in the corridor, hallway, and living room.

In the case of Pirnia House (third period of Qajar) it also observed that the highest connectivity is in the corridors. Bedrooms in this period in this house has lower connectivity than the bedroom of the second period (Italian Embassy), this less connectivity in bedroom reveals that the importance of privacy decreased in the third period. But it still is observable that some bedroom has lowest connectivity which leads to have heist privacy. In the house of the first period connectivity is maximum in the yards and corridors between the inside and the outside and minimal in the rooms. But it revealed that in the houses of the second and even in the third period the highest connectivity is found in the corridors, hallways, living rooms. In this regard, the lowest connectivity is found in the bathrooms and lavatories.

b) Visual integration analysis of the three cases studies: In the Ghavam House (first period of Qajar), the highest "***Visual*** integration" is revealed on the second private courtyard. Corridor which have been connected two yards has also been observed as high visual integrated space in Ghavam House.

In the case of Italian Embassy (second period of Qajar) parlor, hallway, and corridors had the highest level of visual integration. On the other hand, corners of the kitchen and some bedrooms visual integration was in the lowest.

Overall, in can be seen that blue colour which represent privacy in the visual integration of this study decrees by moving the first case study with the second case

study. In this regard, there are high visual integration in the house of the third case study by comparing the house of the second case study.

c) Depth analysis of the three cases studies: In contrast to the connectivity and integration in the Ghavam House (first period of Qajar), depth in this building is the lowest in the yards, the corridors between them, and Dalan. It has also been observed that the highest depth is in rooms and kitchen and some parts of the kitchen.

Comparing depth of the houses in the first period with the second and third case studies it can be observed that the depth of the houses and even bedrooms in the first period are much more than the second and third period. It represents that the space organization moved to a much more and direct space organization by eliminating some in between spaces such as Hashti and Dalan.

5.4.2 Identity of Qajar houses based on static aspects

There are many factors representing identity of Qajar houses based of static aspects. Relation with the context, form and shape of Qajar houses, general design principals and construction materials are the most important factors. The following paragraphs will explain these indicators in detail.

5.4.2.1 Relation with the context of Qajar houses

The study revealed that in the first period of Qajar period, the buildings were developed with respect to the context. Comparing the alleys in the first period of Qajar, which were all in organic shapes, with the third period of Qajar, when broad streets were introduced to the traditional setting, we can see that the harmony with the context disappeared. Figure 63 reveals how buildings in the first and second period of Qajar are connecting to the main street with long and narrow alleys. On the other hand, in the third period of the Qajar the buildings directly opened to the street.

Thus, this study revealed that building has been transferred from introverted type to the extroverted type of houses during and even after the Qajar period.

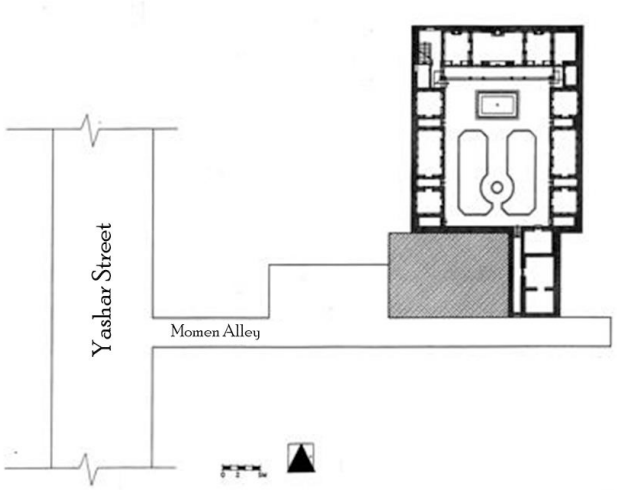


Figure 63. In the first period of Qajar, alleys were mostly ending to the cul-de-sacs.

Accordingly, since the buildings of the first period were introverted, there were no windows in the alleys and external part of the buildings.

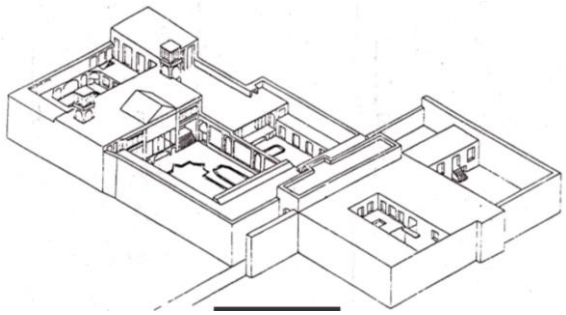


Figure 64. Introverted design, following the principles of traditional Iranian houses in the first period of Qajar houses (reference: URL 31).

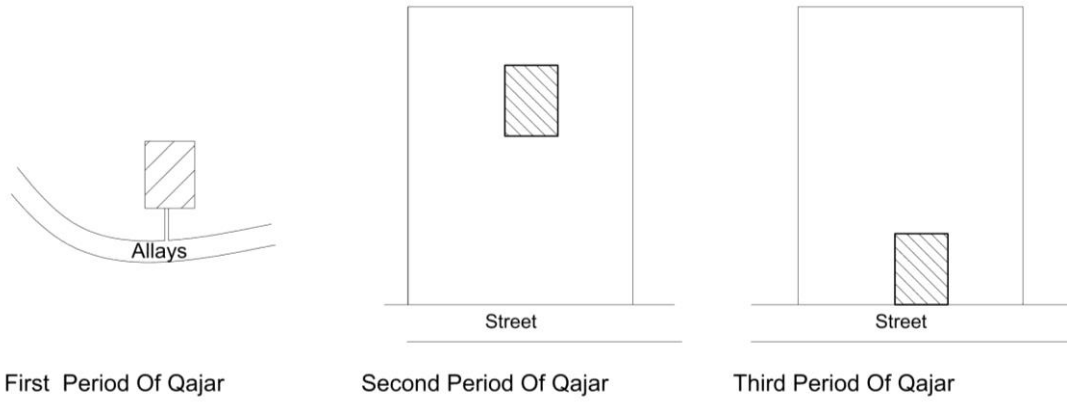


Figure 65. The position of the house in the first, second and third period of Qajar.

As it is also illustrated in the previous Figure the second period of Qajar houses were at the centre of the garden surrounded by tall trees. The same situation was in the third period of Qajar house, but it can be said that in the third period the street faced the elevation of the houses directly for the first time in the history of housing architecture of Iran.

5.4.2.2 Form and shape of Qajar houses

The study revealed that in the first period of the Qajar houses the buildings were more in a linear shape, but in the second and especially in the third period of Qajar houses due to the help of technology which let them to have more height in the building, the buildings tend to square shape while looking from the elevation.

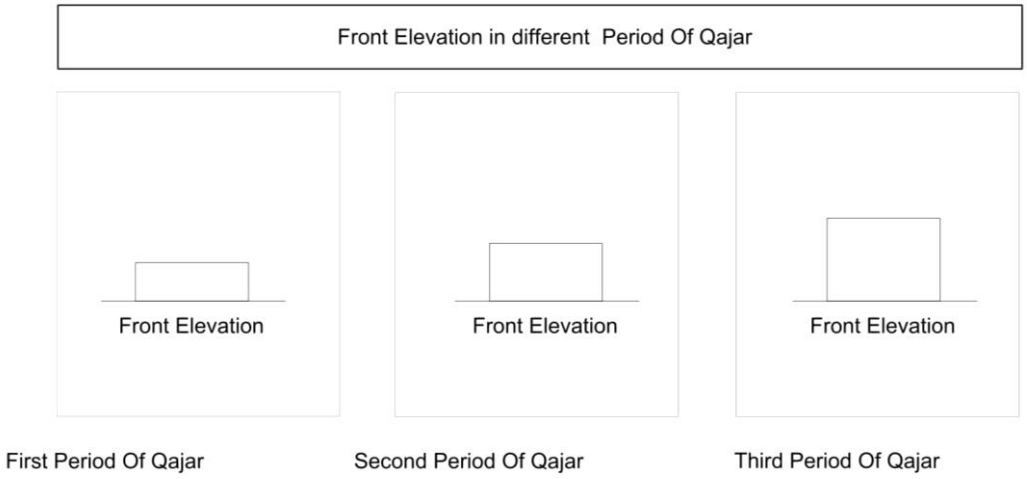


Figure 66. Front Elevation in the different period of Qajar houses.

The study also revealed the overall shape of the plans of Qajar houses by moving forward to the third period to change from a linear type of house to the more concentrated and square shape.

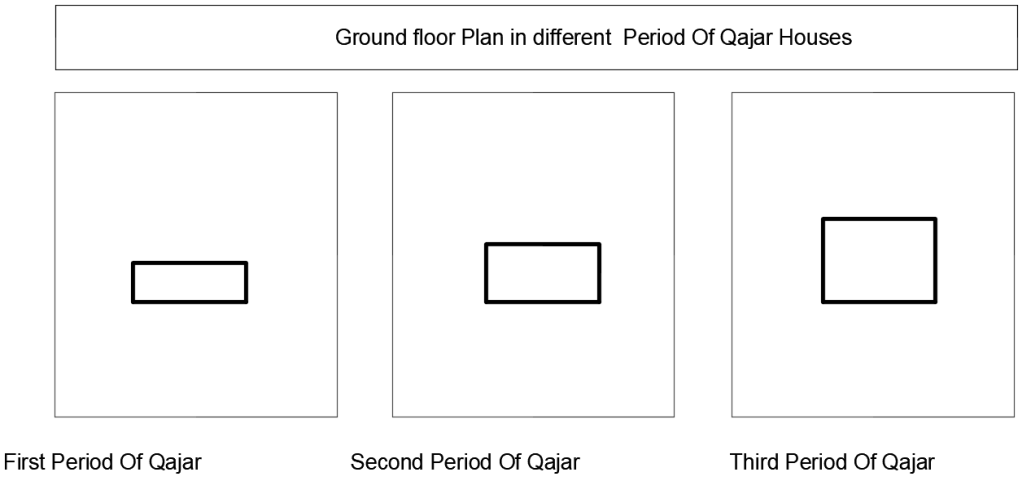
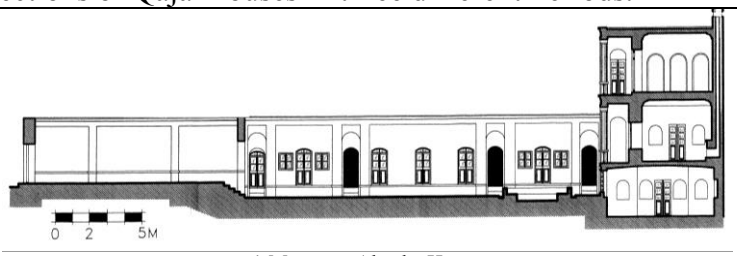
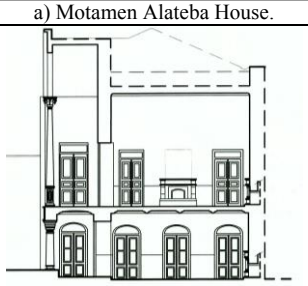
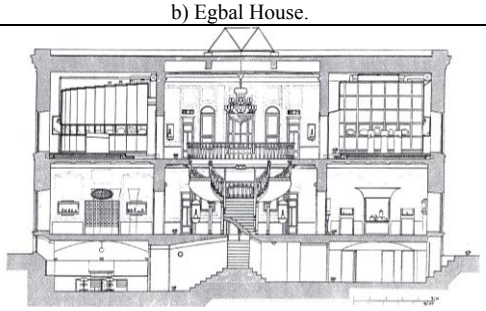


Figure 67. The overall Shape of the plan in the different period of Qajar houses.

The study on the sections of Qajar houses of the first period has also revealed that the majority of houses in this period are quite similar to traditional houses by sharing a common element, horizontal flat roofs. The study on the case studies also revealed that majority of roof in the second and third period have gable roof. The other most distinguish characteristic of Qajar houses was the gallery in the middle of the house

with windows at the roof, which lets the sun to shine inside the house. The height of the rooms in the third period and even in the second period are much more than the Qajar houses of the first period. It is also revealed that the shape and form of the interior staircase has been completely got new form and shapes.

Table 15. Comparing sections of Qajar houses in three different Periods.

First period	 a) Motamen Alateba House.
Second Period	 b) Egbal House.
Third Period	 c) Abgine House.

Windows: are other elements shaping the identity of architecture in Qajar houses. The study on the proportion and size of the windows revealed that in even the proportion of the windows transformed in its shape from the proportion of 1/3 in the first period to the proportion of ½ and in rare cases even to 1/1. Besides, all the windows in the first period have been opened to the courtyard, but in the second and

third year of Qajar house the windows directly opened to the outside garden and sometimes directly to the street.

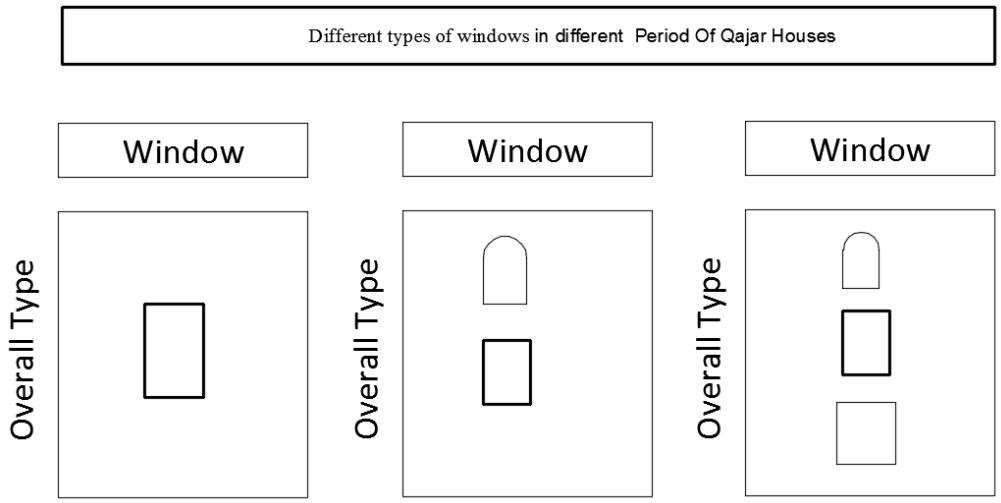


Figure 68. Different Types of windows in different period of Qajar houses.

5.4.2.3 General design principles of Qajar houses

There are some unwritten principles in architectural construction of every culture that they inherited from their ancestors during the hundred years of their architectural practice. The study of general design principles of construction revealed that the architects in all period tried to *design spaces based on the people's needs*. The term ergonomic design has been used in such a kind of spaces in such a way that people feel free and relax in the spaces. Astonishingly, in all periods of Qajar houses architects tried to respect to design based on people's requirements. *Avoiding un-necessity* is another subject to be discussed.

Qualitative analysis of case studies revealed that mostly in the first and rarely in the second period of Qajar houses architects tried to design a house as simple as possible with less ornamentation and detail. But as it can be seen from the case studies (See Appendix B), houses in third period did not pay its due respect to the traditional

principles of construction to *avoid un-necessary. Structural rigidity* is another factor which is considered in this study as general design principles. Since the main aim of every architect is to design stable structures, we can see in all the period of Qajar houses, how they tried to develop a rigid structure as much as they could, based on the modular units that they had developed during architectural design practice.

Overall, the Figure 69 reveals the transformation of identity of the Qajar houses. The classification of the houses in three main period is because of their qualitative analysis (see Appendix B) based on the proposed framework for assessing the identity of Qajar houses which have been developed based on the review of the related literature.

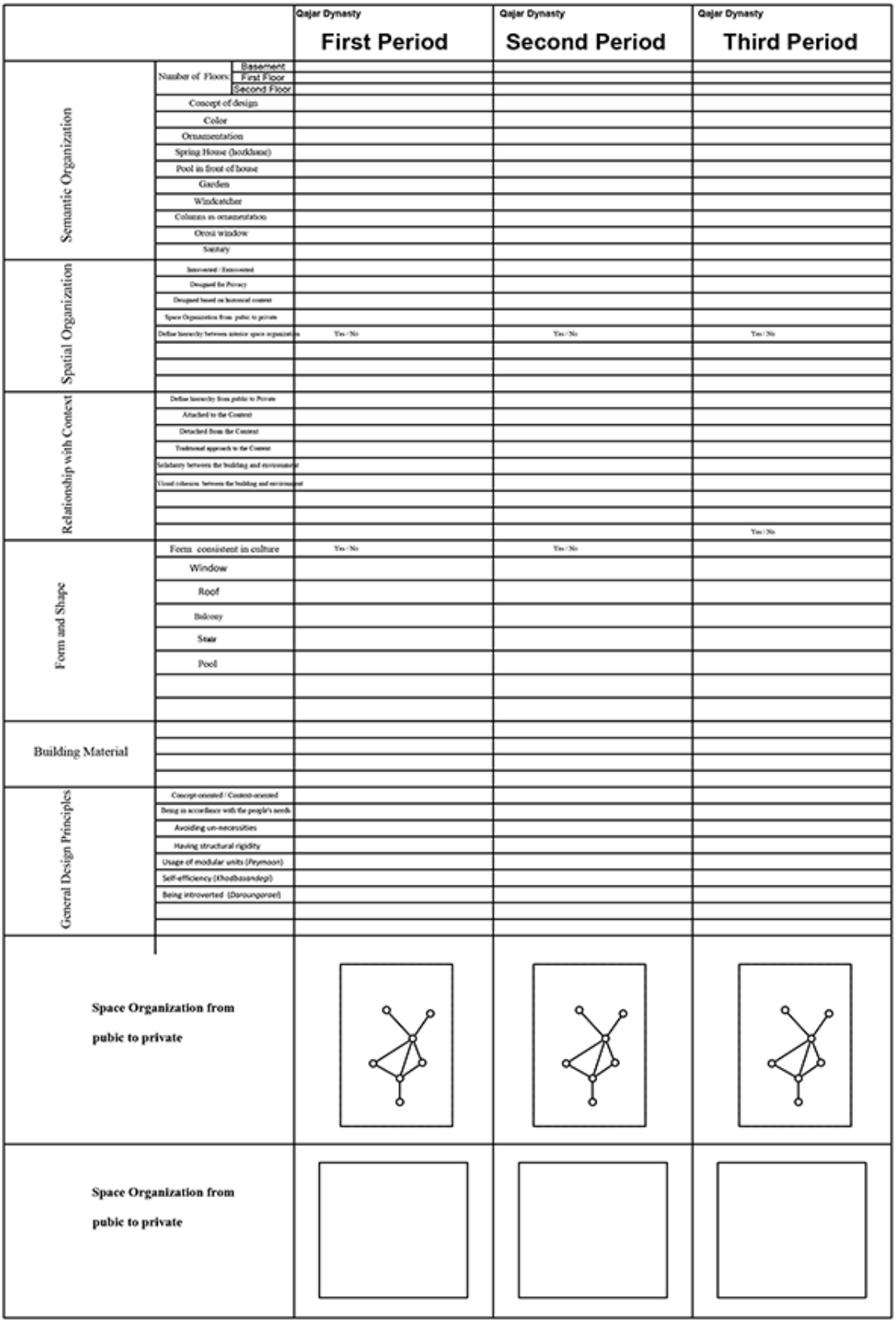


Figure 69. Compression of Qajar Houses in the classified three periods based on Appendix 2 (Developed based on Farahbood, 2017).

5.4.1.4 Construction materials

Qajar houses as traditional Iranian houses used timber and stone as the main construction material. In Qajar houses due to the uses of steel for a first time in construction of houses, architects managed to add one more floor to the house. In this regard, it needed to mention that houses with a first floor (one floor above ground floor) became popular during and after Qajar period. Artificiality and adding more detail in building interior and exterior design was another factor which distinguish the identity of Qajar houses. So here we can conclude that the term aesthetic has changed its own meaning in traditional houses which was related to spirituality and religion to the artificial aesthetics in the third period of Qajar houses.

Chapter 6

CONCLUSION

As it is already mentioned in chapter one, the main aim of the research was to evaluate the importance of the compatibility of the term "*identity*" of architecture in Qajar period which so called in this thesis as transformation period from tradition to contemporary period. The study also develops a comprehensive framework which represents the main elements of shaping identity in Qajar period.

It is revealed through the study in chapter two that identity and architecture are the main concerns in identifying the characteristic of a place. In this regard, it revealed that identity can be interpreted as a sense of belonging which shapes the identity of a place. In the first part of the chapter two it is concluded that identity is a process of identification, amalgamation of many factors shapes overall appearance and therefore identity of a building, place or object.

The study also exposed that identity might be static or dynamic. Dynamic character of identity refers to the idea of time and the changes in the physical dimension of architecture and its layouts due to social, political and economic changes through the time. Static characters of identity, refers to the fact that the notion of time doesn't have direct effect on the overall identity of place.

The study also classified the main factors that aid in shaping the identity of architecture into seven main groups. All the elements and factors in shaping the identity of architecture could be classified in these seven groups which are:

a) Spatial organization, b) Temporal changes, c) Semantic relationship, d) General design principles, e) Form and shape in the building, f) Building material and g) relation to the context.

The study also revealed that place attachment and place identity are interrelated, meaning that place identity might lead to place attachment and/or vice versa. The term "Place-identity" in this thesis denotes the influence of “place” to “cultural identity” by its meanings and values symbolized by spatial organization and its transformation from traditional to contemporary which has happened in Qajar period.

In chapter three it is revealed that cultural values are indispensable aspects of identity. It shapes our life styles and shapes the way we recognize the built environment. Culture is also dynamic which involves a system consisting of rules.

Following the definition of culture in the study with focus on historical buildings, the definitions of cultural heritage was deduced. Consequently, it focused on immovable and tangible part of cultural heritage. It also states that architecture plays a major role in the transformation of identity of cultural heritage through time. It also revealed that Culture can influence on development of architectural identity in two ways: a) through the creation of behavioral laws that leads to spatial hierarchy and functional organization and b) Through the creation of memories, beliefs and in the form of symbols induce meaning into the architecture. Therefore, we can conclude that

culture and overall cultural heritage have tremendous effects in shaping the identity of architecture.

Traditional Iranian houses through thousands of years of development in the context of Iran created its own specific identity. Climatic factors are amongst the most important influences that leads to shaping of identity in architecture. On the other hand, due to the influence of Iran and the importance of the term privacy in the spatial organization in housing design has changed dramatically. The hierarchy of spaces in spatial organization from public to private can be broken into three main parts, namely: a) public, b) Semipublic c) Private.

The study on Iranian traditional houses revealed that there are six main factors which constitute the key principles of design in Iranian Traditional house, they are: a) being in accordance with the people's needs. b) Avoiding un-necessities. c) Having structural rigidity. d) Usage of modular units. e) Self-efficiency. f) Being introverted.

The study also revealed that in order to assess the identity of architecture, it is possible to break the term *identity* down into two main parts which are intangible and tangible. The intangible understanding of the term *identity* refers to the ontological knowledge of architecture, which leads to the admiration of its tradition. On the other hand, tangible understanding refers to all the elements which participate in the spatial organization. The tangible organization in traditional Iranian houses was based on a hierarchy which is linked to the term *privacy*. Accordingly, two main classifications in understanding identity of Iranian traditional architecture were revealed in this study which are Ontological and tangible. Ontological Understanding

of *Identity* in Iranian Architecture is a set of principles developed as some kinds of codes of practice which assisted in enabling the traditional remarks to achieve their ideas in designing process.

The method of using tangible elements based on the culture and ontological understanding of a society might lead to different organization and understanding of spaces. In the case of housing in Iranian traditional houses, the study revealed that every tangible element of the spatial organization has been organized in a hierarchical process to shape the identity.

The study also revealed that principle of architectural design altered over Qajar period. Consequently, through the time during Qajar period and even after that, Iran lost its architectural identity which have been inherited from traditional period. The study also revealed that in the Qajar period traditional Iranian architectural identity was influenced by Western culture and many other external factors such as a) having contact and contribution of governmental staff and architects with the Western countries. b) The travel of authorities and students abroad and transferring the information to the country. c) The entrance of new technical, technological tools and materials due to the aim of Qajar's governors to expose the contemporary side of Iran. The study revealed that, the identity of Qajar houses is the continuation of earlier eras particularly Safavid period (a period before Safavid era). In Qajar period, a strong tendency toward the West led traditional architects to think of creating a sense of being European in buildings. Thought and after Qajar period due to the arrival of new architectural style and urban design principles and elements such as a streets and squares (in a modern form) to the field of Iranian architecture, some

major alterations happened and a new architectural style called street architecture which is visible in the third period of Qajar houses appeared.

Considering the proposed framework of assessing identity in this thesis, it can be can be concluded that the dynamic factors in shaping architectural identity have always been changing through time. In this regard, assessing Qajar houses in Tehran as a case study revealed the same notion. Some indicators of general design principles as one of the main factors in shaping architectural identity have also changed through time. In the third period of Qajar, new architectural spaces have been added to housing design. Which were not accordance with people's needs. The second and third period of Qajar have been established a method which so called artificial design, therefore, we can see that in this period the traditional notion of avoiding un-necessity has been disappeared. The notion of "simplicity in design" as another element of general design principles in Iranian traditional houses has been eliminated from the second period of Qajar due to using artificial elements of design such as different colour, textile.

Traditional notion of contextual design which leads to design introverted houses has also affected by the idea of street design which leaded to have extroverted houses since Qajar period.

The study also revealed that there are some specific principles which respect to the traditional housing design. A) Self-Reliance by using vernacular material (in construction of Qajar houses) B) Usage of Modular Units (Peymoon) C) Self-sufficiency (Maximum use of existing facilities) are the elements which we can see continued from the past as well as Qajar period.

Overall, it can be discussed that external factors led to the transformation of the identity of the Iranian traditional house to the contemporary forms of design. In this regard, in spite of the fact that Qajar architecture had its own identity of architecture, at the same time the period worked as a transformer of identity from traditional to the contemporary period.

The study also revealed that this transition period can also be classified into three main parts which the study called the architecture of Qajar in the first, second and third period. Astonishingly, it revealed that each period of these classifications has its own characteristic in term of factors which shapes architectural identity. The diagrammatic illustration of changes in architecture of Qajar houses revealed that from the first period to the third, the houses rejected traditional design principles and moved toward designing based on extroverted design concepts taken from western countries. Consequently, traditionally contextual approach of design replaced with form oriented design in Qajar period.

Qajar architecture developed the notion of transparency in the housing design. Technological development and using new materials of construction and social, political and economic reforms of kings on Qajar period leads to such a kind of transparency in the housing design. It is also concluded that the traditional pattern of spatial design by developing the notion of transparency in design contributed one more step in the architectural evolution of Iranian architecture.

But if we look at houses from Qajar architecture we can see that the space organization, proportion, shape and form of the houses has been simplified as much as it can. In this regard, by comparing the same houses from traditional Iranian

houses, we can see that, using different colour for painting in and out of the houses, textiles and decoration have been increased. So here we can conclude that the term aesthetic has changed its own meaning in traditional houses which was related to spirituality and religion to the artificial aesthetics in the third period of Qajar houses.

Qajar architecture, advanced the foundation and principles of traditional Iranian housing by introducing some innovation in the organization of the available space. Therefore, it seems that it has the potential to describe it as a new style of architecture emerging from the process of modernization of traditional Iranian architecture. Creative spaces, diversity of spaces, and new architectural spaces, which met the needs of the users were the most important factors in the implementation and function of Qajar architecture. Therefore, it appears that the traditional pattern of Iranian architecture was developed in conjunction with the concept of space functionality.

During the Qajar period new spaces were designed, and as a result of this, the diversity of the spaces, in terms of adding new functionality to buildings, was increased. The study also revealed that, the traditional pattern of architectural design itself, was developed in terms of the expansion of space. The use of new and improved materials for building construction in Qajar period resulted in faster construction and consequently, the introverted design style was replaced with the extroverted design style in Qajar architecture. By evaluating the spatial characteristics of traditional Iranian houses as the main component of its identity, it was demonstrated that in the transition from traditional to contemporary the physical characteristics of the house noticeably changed.

Overall, it concludes that apart from radical social, political, economic and technological developments in the Qajar period, some traditional principles of housing (such as courtyards, simplicity in design) are frozen, but culture - architecture- of privacy in design due to the people's religion is continuing. Therefore, apart from radical changes in Qajar period, principles of housing design and construction follow the same notion of design and construction of traditional Iranian houses.

The proposed framework is applicable in each and every Qajar house. Architects and urban designers may use this framework to assess and interpret the overall characteristics which shapes the overall identity of Qajar houses. The study to find an appropriate framework for assessing the identity of the "public buildings" of the Qajar period and the study on the factors and elements of shaping "architectural identity" after Qajar period till contemporary period have been proposed as further study.

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URL 22. Spring House of Mahinestan. Adopted from: https://www.tripadvisor.com

URL 23. Pool as undeniable element of houses in Qajar period. Photo from Mogadam house in Tehran. Adopted from: https://www.tripadvisor.com

URL 24. Ferdousi Garden in Tehran. Adopted from: http://www.bezanimbiroon.ir/place/%D8%A8%D8%A7%D8%BA-%D9%81%D8%B1%D8%AF%D9%88%D8%B3/565

URL 25. Interior spaces and their interrelation in Iranian traditional houses-Mehraban Gudarz House. Adopted From: URL 25-http://ghoolabad.com/index2.asp?id=12

URL 26. Plan and Section of Abanbar. Adopted From: http://ghoolabad.com/index2.asp?id=55

URL 27. Plan for Palladio's Villa Rotonda. Palladian style houses throughout Europe - stairs which are in the main axes have been imitated in Qajar Period. Adopted From: https://commons.wikimedia.org/wiki/File:PalladioRotondaPlan.jpg

URL 28. Interior decoration of Mostufiolmamalek House belong to the second period of Qajar. Adopted From: http://makanbin.net/image/1244/3

URL 29. Exterior ornamentation of houses in Qajar period- Mostufiolmamalek House belong to the second period of Qajar. Adopted From: http://www.donyayesafar.com/n/9810

URL 30. Abgine House. Interior Decoration and ornamentations. Adopted From: https://howlingpixel.com/wiki/Abgineh_Museum_of_Tehran

URL 31. Introverted design, following the principles of traditional Iranian houses in the first period of Qajar houses. Adopted From: https://en.wikipedia.org.

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APPENDICES

Appendix A: List of all the existing historical buildings in Tehran.

Appendix B: List of all the existing houses in the Qajar Period						
	Name Of houses	**Period**	**First function**	**Corrent Function**	**Story**	**Number in Cultural heritage list of Iran**
1	Italian Embassy	Ghajar	House	House	1	1965
2	Sheikh khazal	Ghajar	House	restaurant	1+basement	10849
3	Rahnama	Ghajar	House	House	1+basement	9281
4	sahebgharanieh	Ghajar	Palace	Museum	2	419
5	Ahmad shahi palace	Ghajar	Palace	Museum	2	2025
6	Mozafari darabad	Ghajar	Palace	office	2	3792
7	Koshk sadabad	Ghajar	House	Museum	2	1957
8	Bagh ferdos	Ghajar	House	Museum	2	1876
9	MOSTOFI	Ghajar	House	PARK	2+Basement	5806
10	KIANIAN	Ghajar	House	House	1	12280
11	Eyno dole	Ghajar	House	Glory	2	2042
12	Arbabhormoz	Ghajar	House	Galory	2	14610
13	Saltanat abad	Ghajar	Palace	Museum	3	418
14	Kola farangi ghasr	Ghajar	Palace	Museum	1	1766
15	Eshrat abad	Ghajar	Palace	---------	4	648
16	Alam al saltaneh	Ghajar				2490
17	Amir Bahador	Ghajar	House	Office	2	4411
18	Anis aldoleh	Ghajar	House	Office	2	10403
19	Negarestan	Ghajar	Palace	Museum	1	2082
20	Fazel Araghi	Ghajar	Palace	Museum	3	2568
21	Kashani	Ghajar	House	House	1+Basement	13737
22	etehadieh	Ghajar	House	House	2	12057
23	Emam jome	Ghajar	House	Office	1+Basement	1772
24	Amin Alzrab	Ghajar	House	House	1+Basement	10415
25	Fakhr almolok	Ghajar	House	Restaurant	2+Bacement	29376
26	Parvin etesami	Ghajar	House	Office	2	14619
27	Jalal Ale ahmad	Ghajar	House	Office	2	11206
28	Jalalaldin tehrani	Ghajar	House	House	2	4568
29	Malek	Ghajar	House	House	2	1940
30	Hesam lashgar	Ghajar	House	House	1+basement	13739
31	Dabir amlak	Ghajar	House	gallery	1+basement	14615
32	Dr hesabi	Ghajar	House	gallery	1	2070
33	Rezakhan	Ghajar	House	office	1+basement	11201
34	rahavi	Ghajar	House	House	2+basement	10417
35	seraj	Ghajar	House	House	2	18676

Appendix B: List of all the existing houses in the Qajar period

36	Sarhang iraj	Ghajar	House	House	2	13857
37	Sardar asad	Ghajar	House	Museum	2	1349
38	Sharif al olama	Ghajar	House	House	2+basement	10863
39	Shahriar fariborz	Ghajar	House	House	2	13077
40	Aziz sultan	Ghajar	House	office	1+bacement	11211
41	Feyz	Ghajar	House	House	1+basement	26595
42	Firozkohi	Ghajar	House	House	1+basement	13563
43	Ghavam aldoleh	Ghajar	House	House	2+basement	2024
44	hafttan	Ghajar	House	office	2	10414
45	Mostofialmamalek2	Ghajar	House	House	1+basement	1505
46	Moshir aldoleh	Ghajar	House	office	2+basement	1899
47	Motamen al ateba	Ghajar	House	House	2+basement	3104
48	Mirzabozorg nori	Ghajar	House	House	1+basement	16707
49	Naseraldin mirza	Ghajar	House	House	1+basement	12214
50	Nasiraldoleh	Ghajar	House	House	2+basement	10847
51	hedayat	Ghajar	House	Library	1+basement	2491
52	Fakhr abad	Ghajar	House	gallery	2+basement	8008
53	Roghan nabati	Ghajar	House	gallery	2+basement	11199
54	Niro mosalah	Ghajar	House	office	2	14613
55	Sahami enteshar	Ghajar	House	office	2	15784
56	koshk	Ghajar	House	office	2	1834
57	Denmark embassy	Ghajar	House	House	1	7441
58	kazemi	Ghajar	House	gallery	2+basement	3030
59	Masodieh	Ghajar	palace	Gallery	2	2190
60	Nezamieh	Ghajar	House	office	2	11244
61	Golestan	Ghajar	palace	Museum	2	417
62	roshangar	Ghajar	palace	school	2	2492
63	Abgineh	Ghajar	House	Museum	2+basement	2014
64	Poshte shishe	Ghajar	House	Museum	22+basement	2322
65	Sorkhe hesar	Ghajar	palace	Office	2	10412
66	Farah abad	Ghajar	palace	office	3	1331
67	Amir soleymani	Ghajar	palace	Gallery	2	13352
68	Malek rey	Ghajar	House	House	1+basement	2498

Appendix C: Case studies of Qajar houses in the first, second and third period

The following tables, assess the identity of Qajar houses based on the tools and technique which have been developed throughout the making of the thesis. As it has been explained previously, the relationship of the buildings in the context, semantic elements, spatial organization of houses, form and shape of the building have been considered here in this thesis as major elements which might lead to shape the identity of Qajar houses. General design principles of Qajar house have also been assessed in the following case studies. Considering the fact that the limitation of the thesis is to assess the identity of Qajar houses in Tehran and since the architectural characteristic of houses in each and every period was quite similar to each other, this study tried to choose 5 houses from each and every period.

Table 17. Qajar Houses of the first period - Case study number 1.

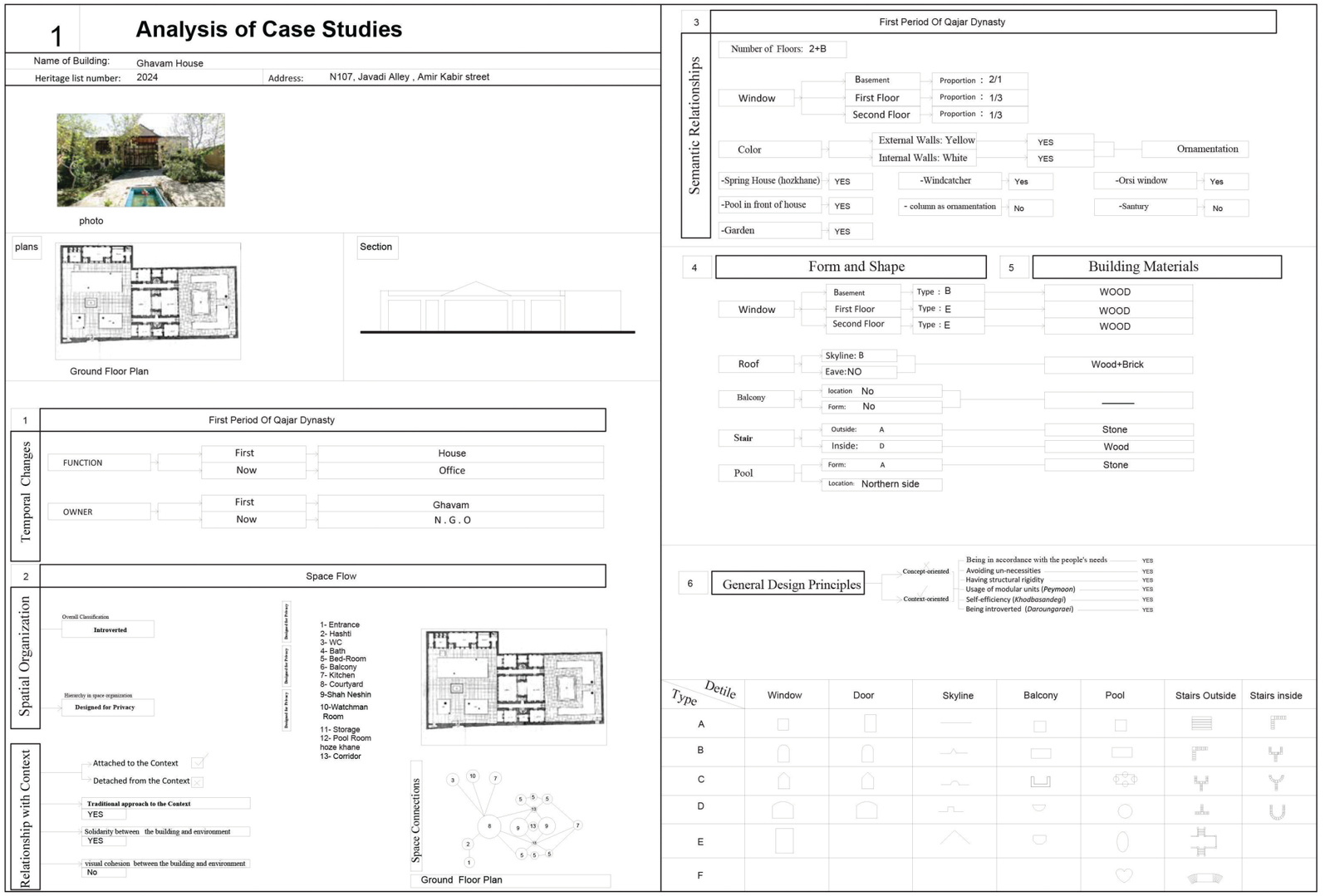


Table 18. Qajar Houses of the first period - Case study number 2.

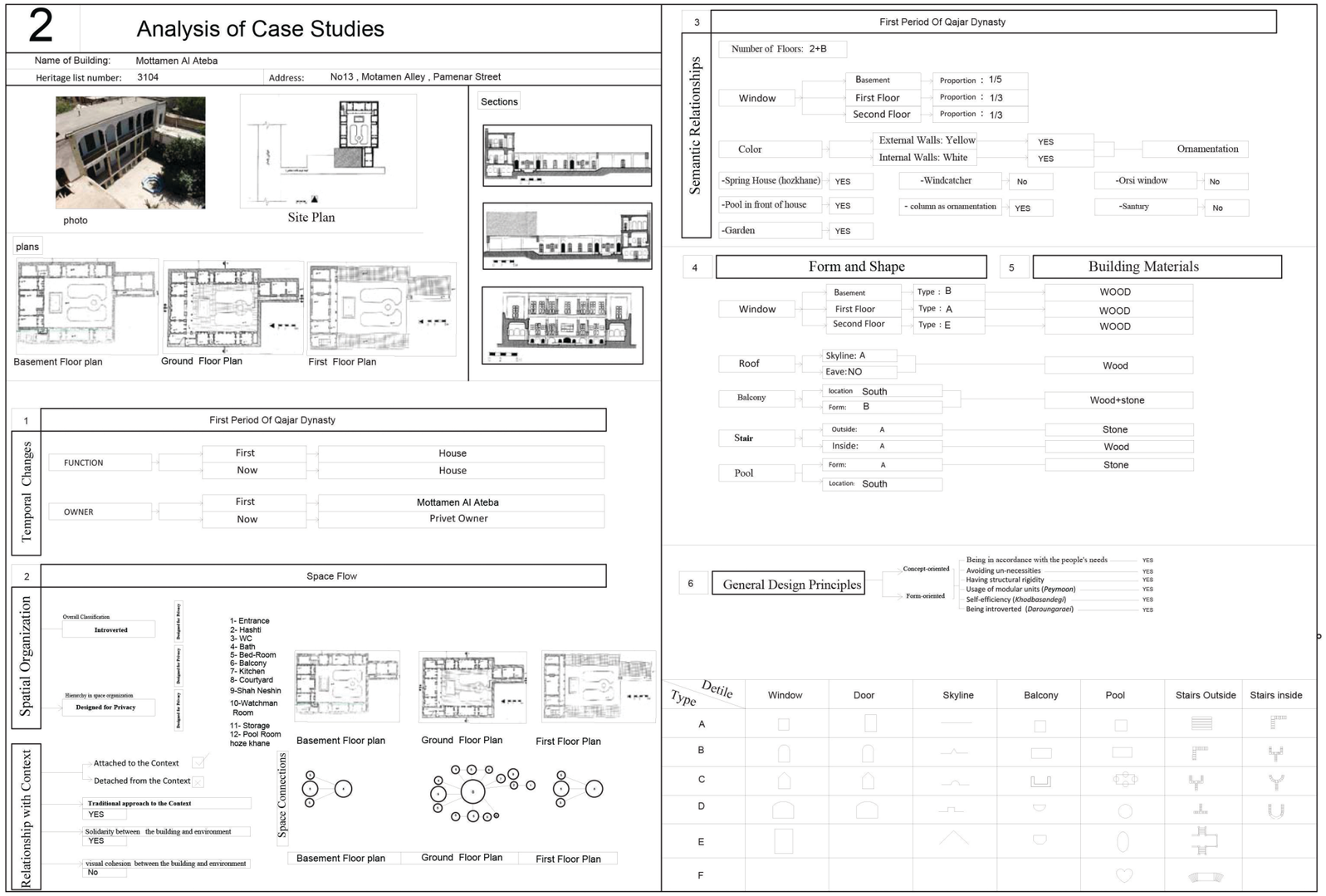


Table 19. Qajar Houses of the first period - Case study number 3.

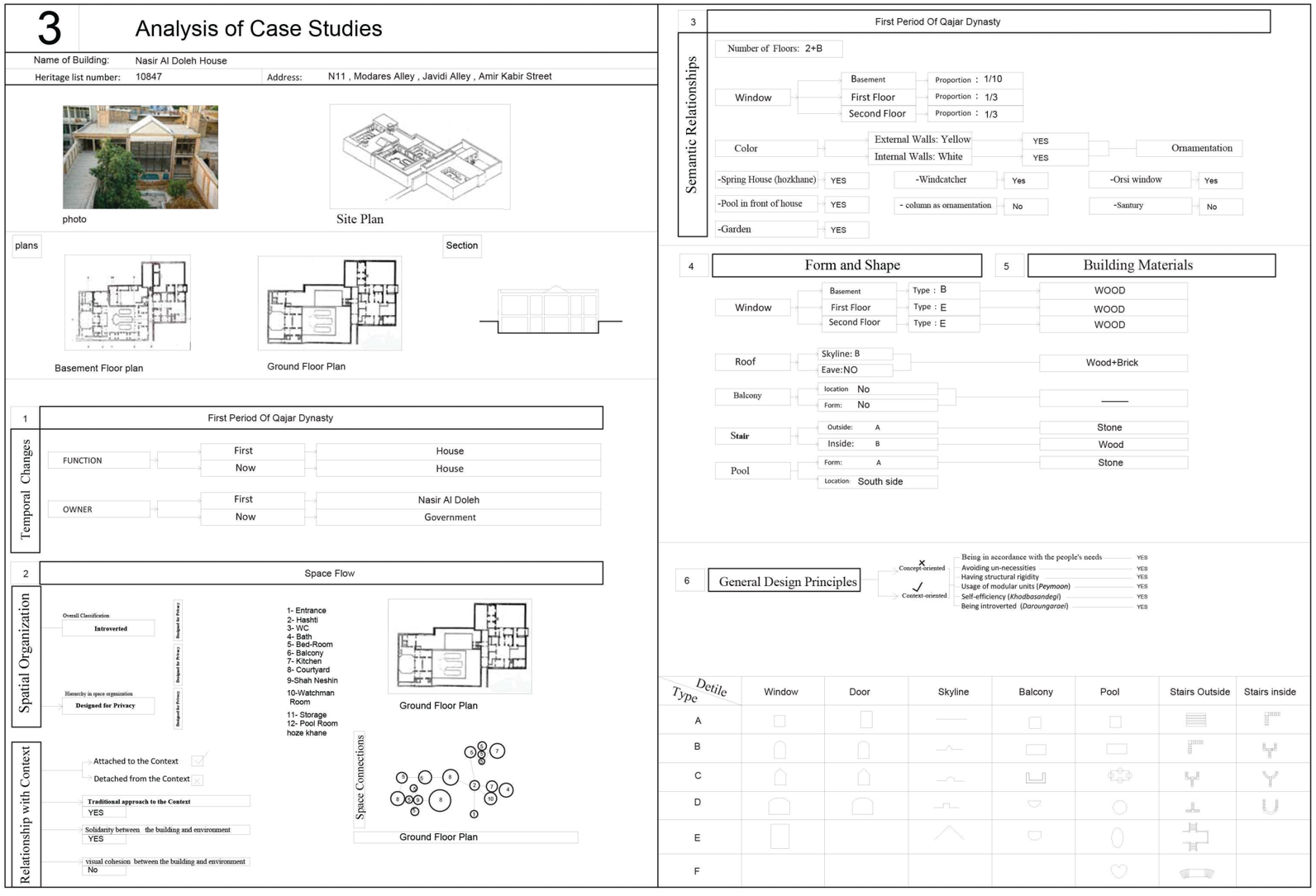


Table 20. Qajar Houses of the first period - Case study number 4.

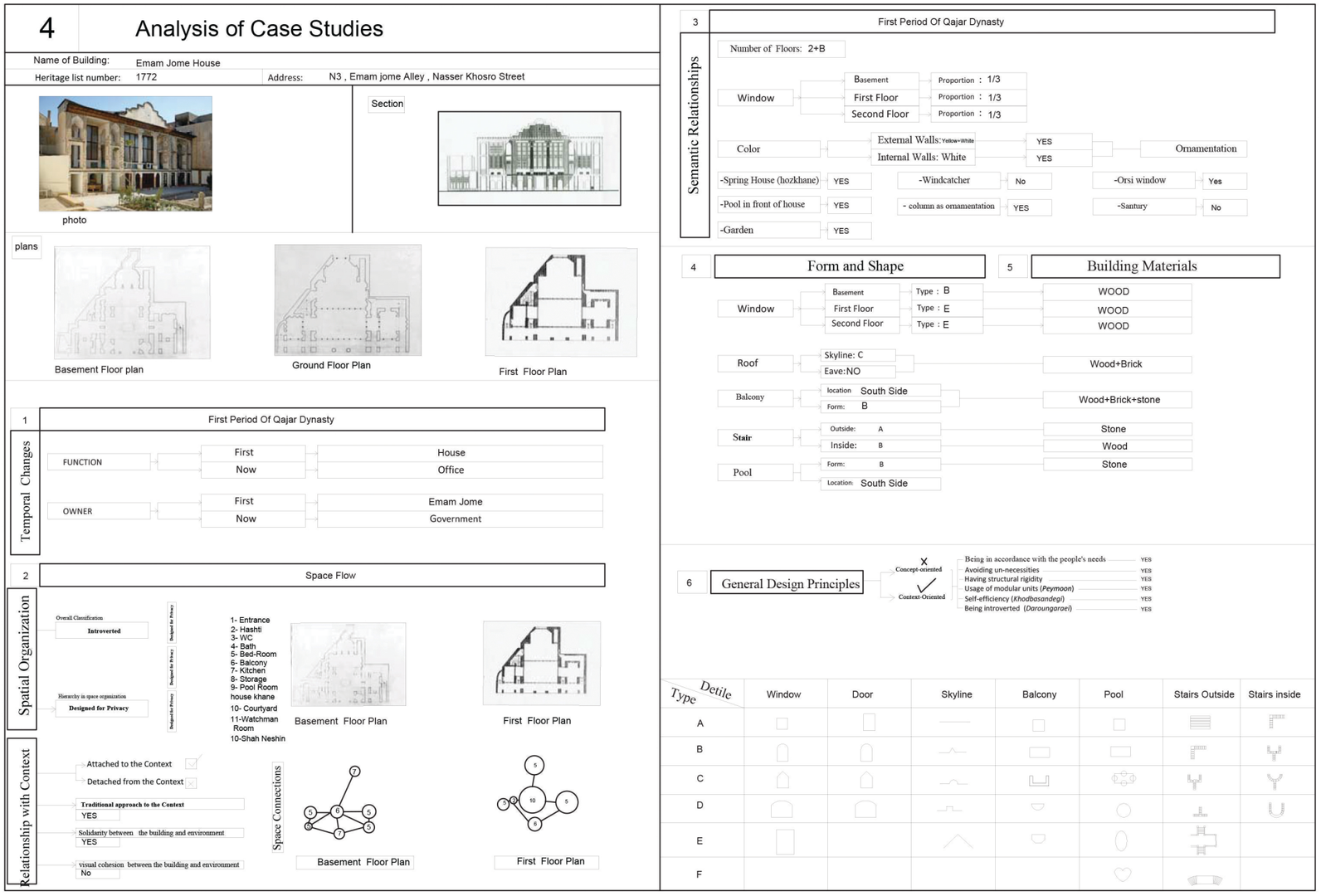


Table 21. Qajar Houses of the first period - Case study number 5.

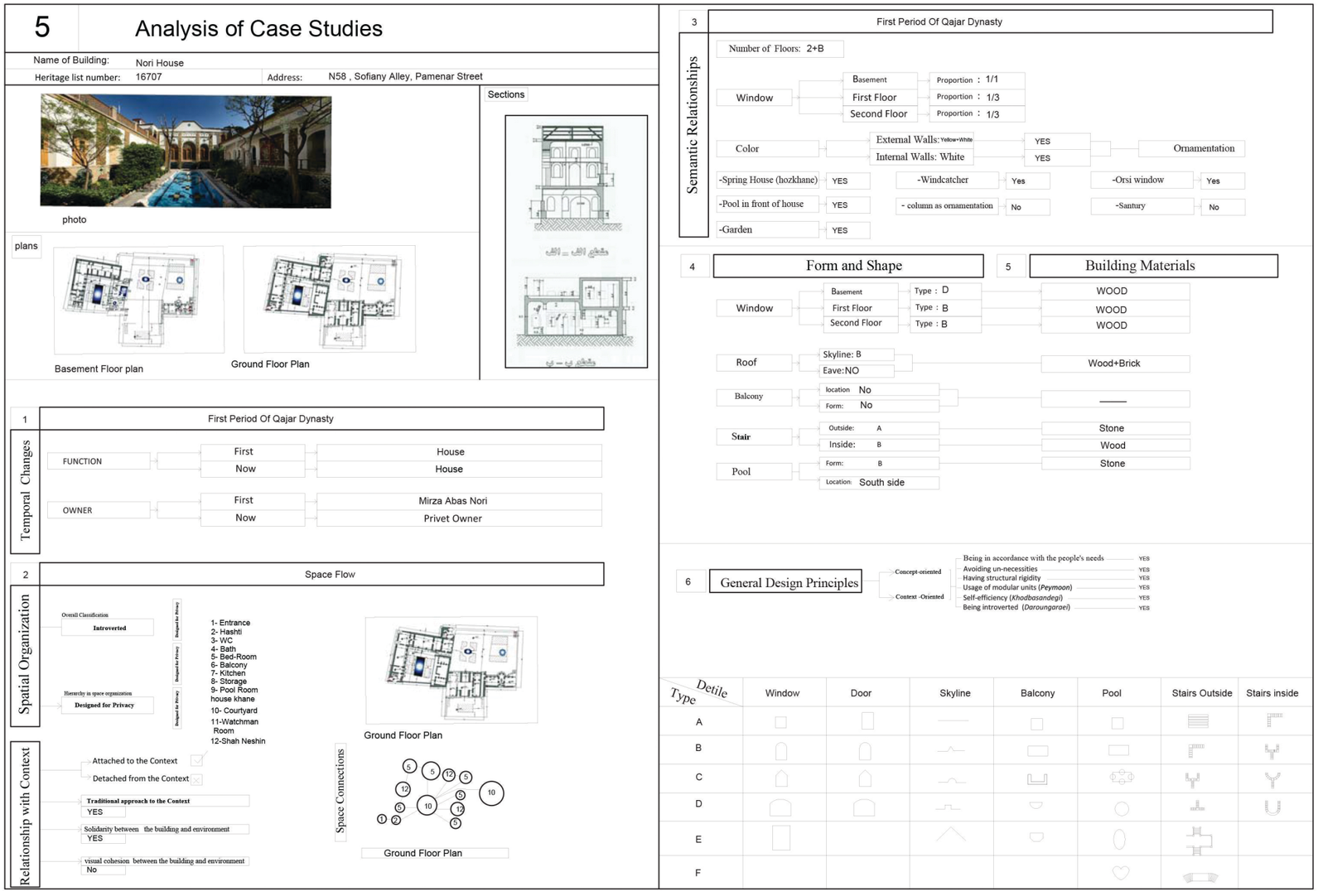


Table 22. Qajar Houses of the Second period - Case study number 1.

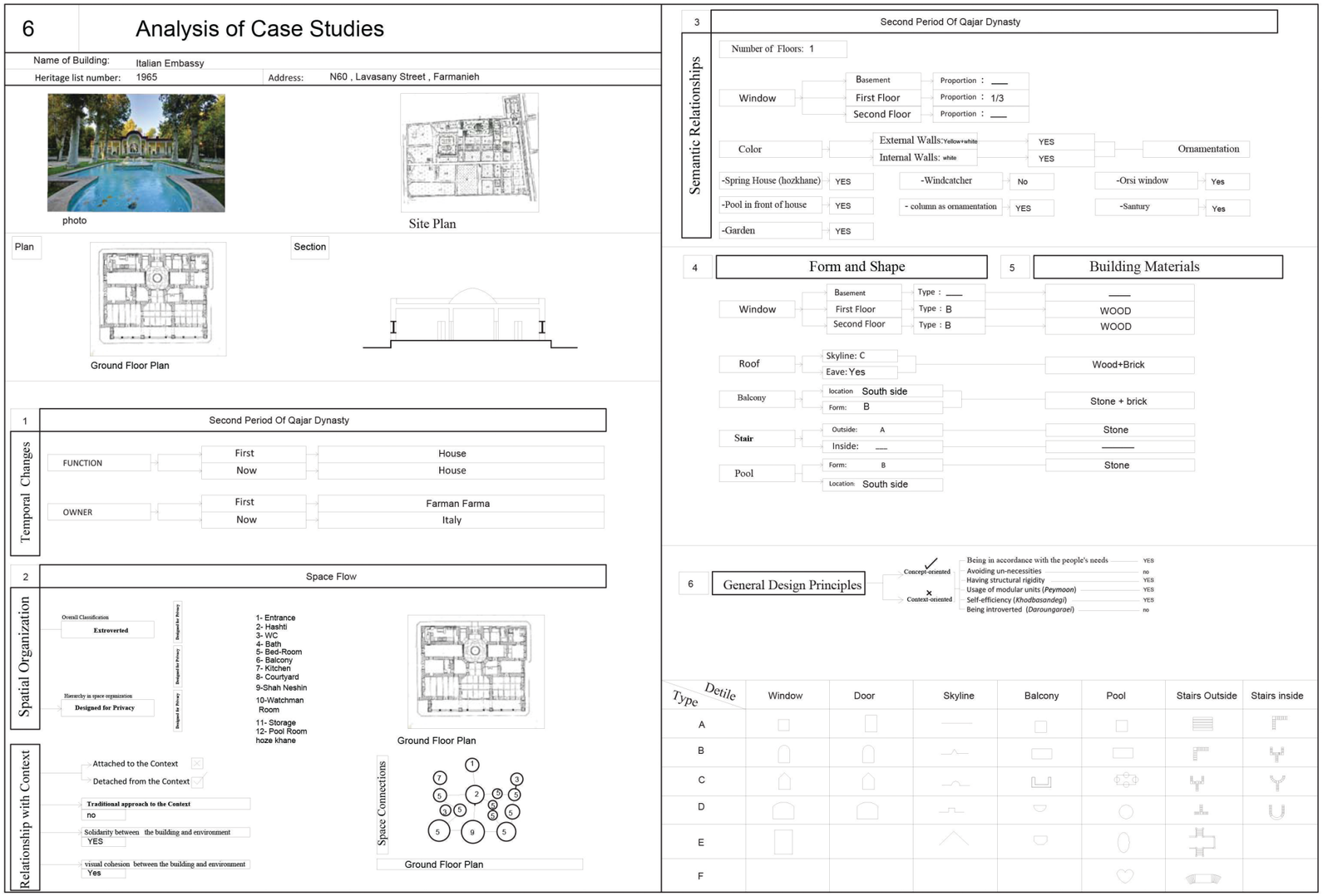


Table 23. Qajar Houses of the Second period - Case study number 2.

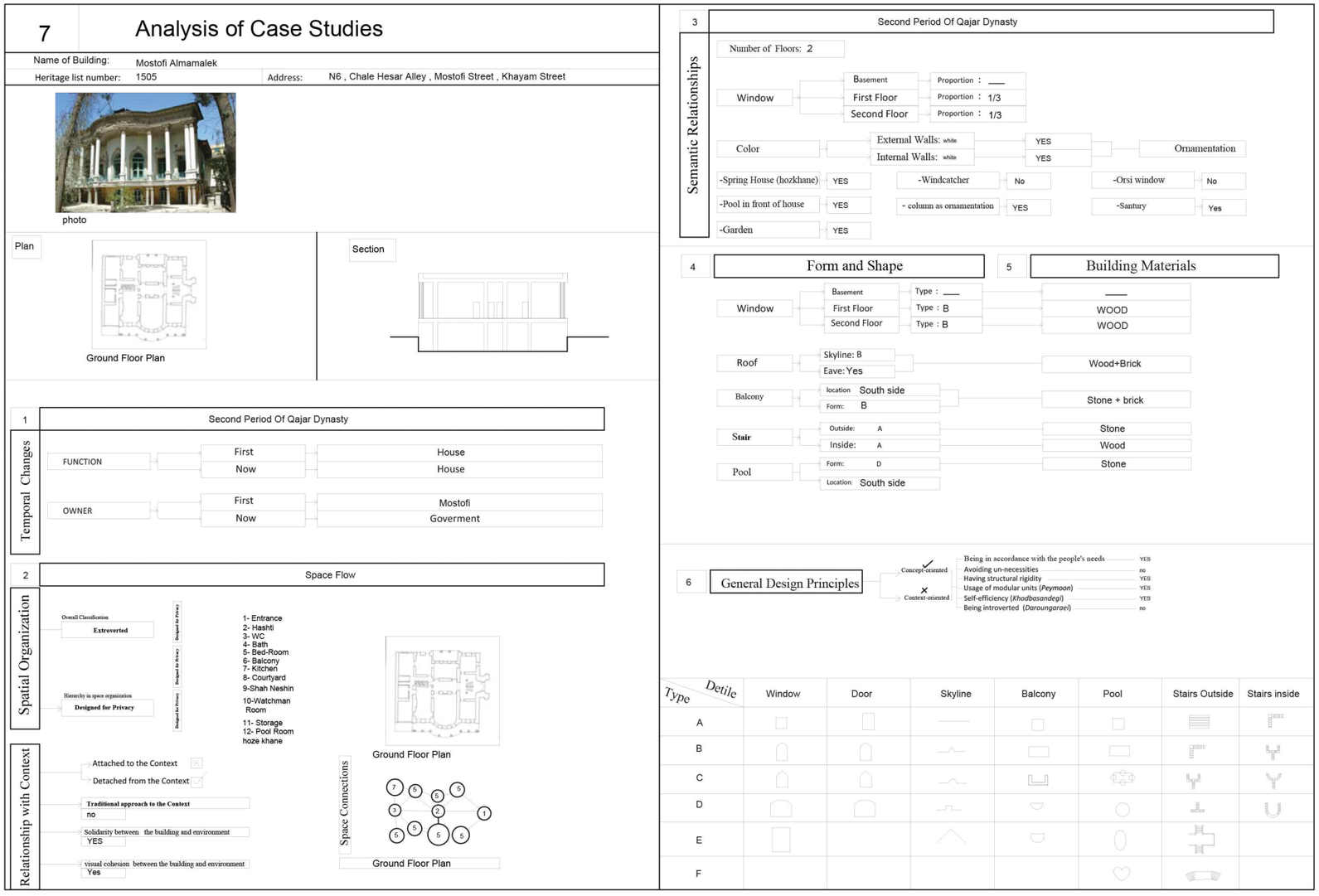


Table 24. Qajar Houses of the Second period - Case study number 3.

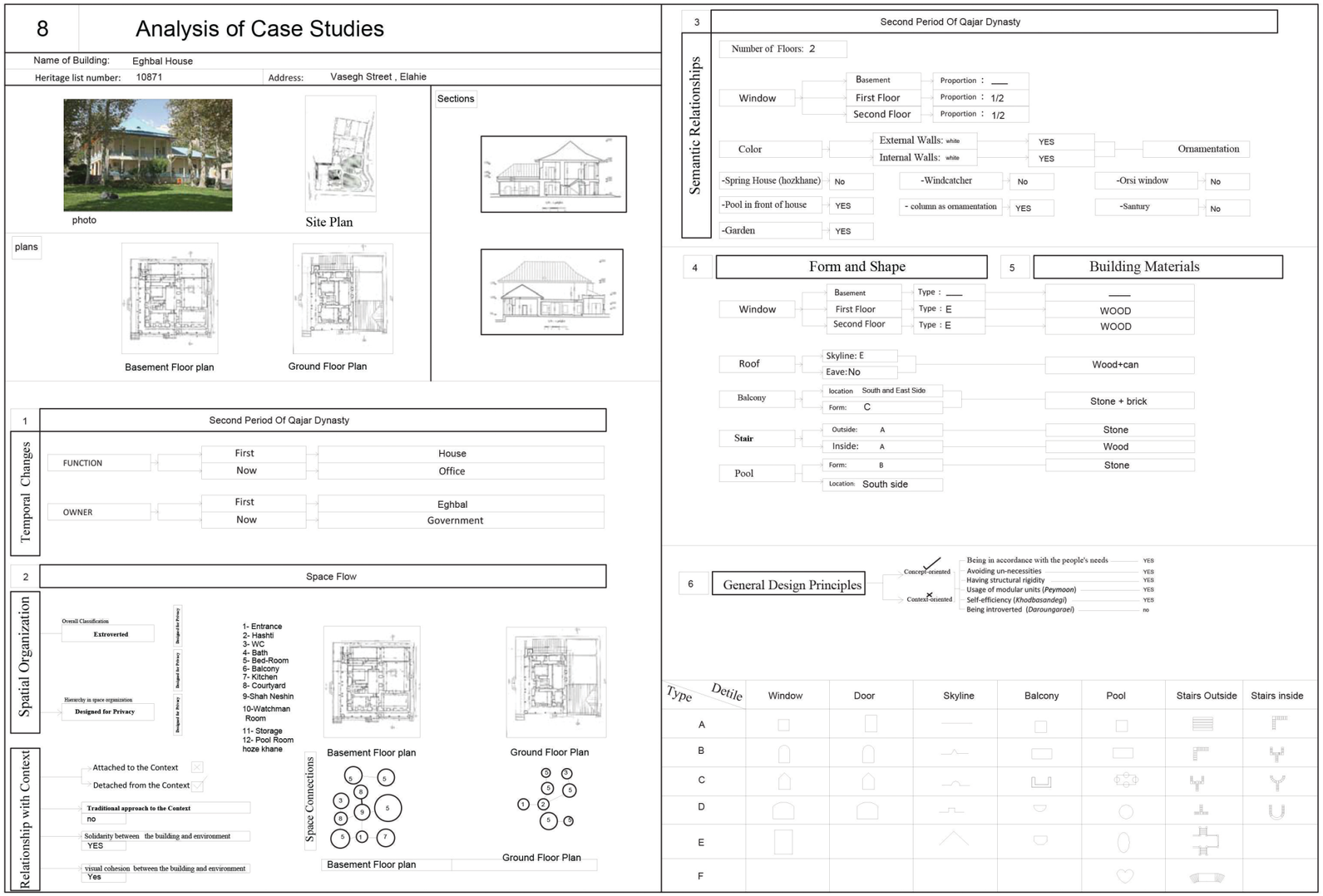


Table 25. Qajar Houses of the Second period - Case study number 4.

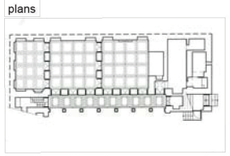
9 Analysis of Case Studies

Name of Building: Anis Al Doleh House

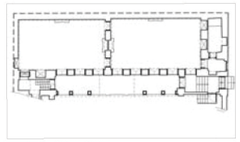
Heritage list number: 10403 Address: N322 , Vali Asr Street

photo

plans



Ground Floor Plan



First Floor Plan

Section

1 second Period Of Qajar Dynasty

Temporal Changes

FUNCTION	First	House
	Now	Office
OWNER	First	Anis Al Doleh
	Now	Goverment

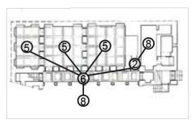
2 Space Flow

Spatial Organization

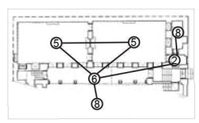
Overall Classification: Extroverted

Hierarchy in space organization: Designed for Privacy

1- Entrance
2- Hashti
3- WC
4- Bath
5- Bed-Room
6- Balcony
7- Kitchen
8- Courtyard
9-Shah Neshin
10-Watchman Room
11- Storage
12- Pool Room hoze khane



Ground Floor Plan



First Floor Plan

Relationship with Context

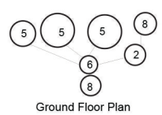
Attached to the Context

Detached from the Context

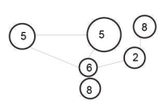
Traditional approach to the Context: no

Solidarity between the building and environment: YES

visual cohesion between the building and environment: Yes



Ground Floor Plan



First Floor Plan

3 Second Period Of Qajar Dynasty

Semantic Relationships

Number of Floors: B+1

Window	Basement	Proportion : 1/3			
	First Floor	Proportion : 1/3			
	Second Floor	Proportion : ——			
Color	External Walls: Blue	YES	Ornamentation		
	Internal Walls: White	YES			
-Spring House (hozkhane)	YES	-Windcatcher	No	-Orsi window	No
-Pool in front of house	YES	- column as ornamentation	YES	-Santury	Yes
-Garden	YES				

4 Form and Shape

5 Building Materials

Window	Basement	Type : B	WOOD
	First Floor	Type : E	WOOD
	Second Floor	Type : ——	——
Roof	Skyline: C		Wood+Can
	Eave:NO		
Balcony	location South Side		Wood+stone
	Form: B		
Stair	Outside: A		Stone
	Inside: A		Wood
Pool	Form: D		Stone
	Location: South side		

6 General Design Principles

Concept-oriented ✓

Context-oriented ✗

Being in accordance with the people's needs	YES
Avoiding un-necessities	no
Having structural rigidity	YES
Usage of modular units (*Peymoon*)	YES
Self-efficiency (*Khodbasandegi*)	YES
Being introverted (*Daroungaraei*)	no

Type \ Detile	Window	Door	Skyline	Balcony	Pool	Stairs Outside	Stairs inside
A							
B							
C							
D							
E							
F							

Table 26. Qajar Houses of the Second period - Case study number 5.

10 Analysis of Case Studies

Name of Building: Reza Khan House

Heritage list number: 11201 Address: N46 , Nemati Street , Emam Khomeiny Street

photo

plans

Ground Floor Plan

1 Second Period Of Qajar Dynasty

Temporal Changes

FUNCTION	First	House
	Now	Museum
OWNER	First	Reza Khan
	Now	Government

2 Space Flow

Spatial Organization

Overall Classification: Extroverted

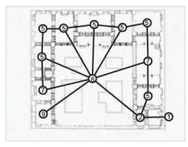
Hierarchy in space organization: Designed for Privacy

Designed for Privacy

Designed for Privacy

Designed for Privacy

1- Entrance
2- Hashti
3- WC
4- Bath
5- Bed-Room
6- Balcony
7- Kitchen
8- Courtyard
9-Shah Neshin
10-Watchman Room
11- Storage
12- Pool Room
hoze khane



Ground Floor Plan

Relationship with Context

Attached to the Context

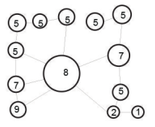
Detached from the Context

Traditional approach to the Context: no

Solidarity between the building and environment: YES

visual cohesion between the building and environment: Yes

Space Connections



Ground Floor Plan

3 Second Period Of Qajar Dynasty

Semantic Relationships

Number of Floors: B+1

Window	Basement	Proportion : 1/1.5			
	First Floor	Proportion : 1/3			
	Second Floor	Proportion : ____			
Color	External Walls: yellow	YES	Ornamentation		
	Internal Walls: White	YES			
-Spring House (hozkhane)	YES	-Windcatcher	No	-Orsi window	No
-Pool in front of house	YES	- column as ornamentation	YES	-Santury	No
-Garden	YES				

4 Form and Shape

5 Building Materials

Window	Basement	Type : D	WOOD
	First Floor	Type : B	WOOD
	Second Floor	Type : B	WOOD
Roof	Skyline: A		Wood+Brick
	Eave:NO		
Balcony	location South Side		———
	Form: B		
Stair	Outside: A		Stone
	Inside: ——		Wood
Pool	Form: D		Stone
	Location: South side		

6 General Design Principles

Concept-oriented ✓

Context-oriented X

Being in accordance with the people's needs	YES
Avoiding un-necessities	YES
Having structural rigidity	YES
Usage of modular units (*Peymoon*)	YES
Self-efficiency (*Khodbasandegi*)	YES
Being introverted (*Daroungaraei*)	YES

Type \ Detile	Window	Door	Skyline	Balcony	Pool	Stairs Outside	Stairs inside
A							
B							
C							
D							
E							
F							

Table 27. Qajar Houses of the Third period - Case study number 1.

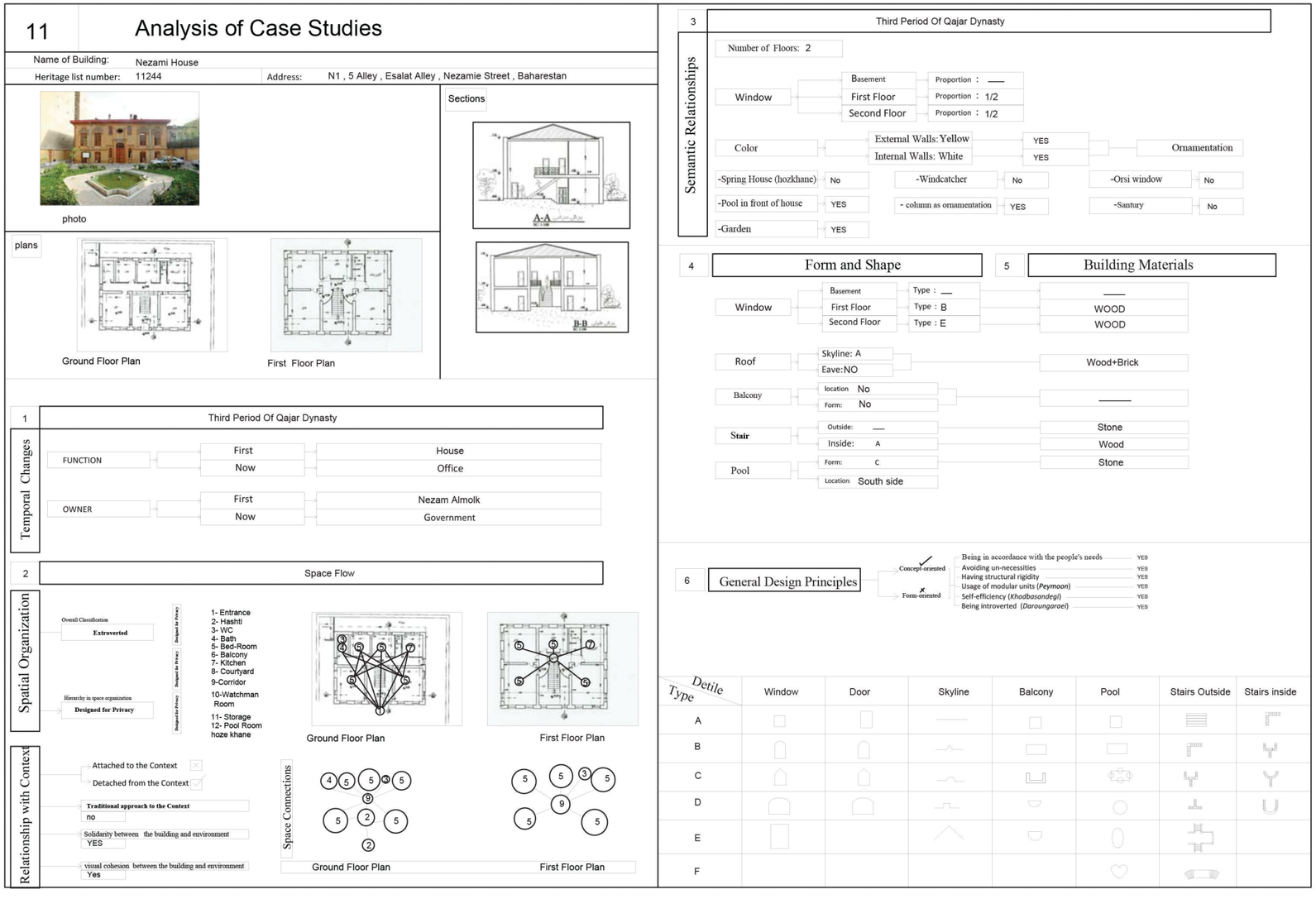


Table 28. Qajar Houses of the Third period - Case study number 2.

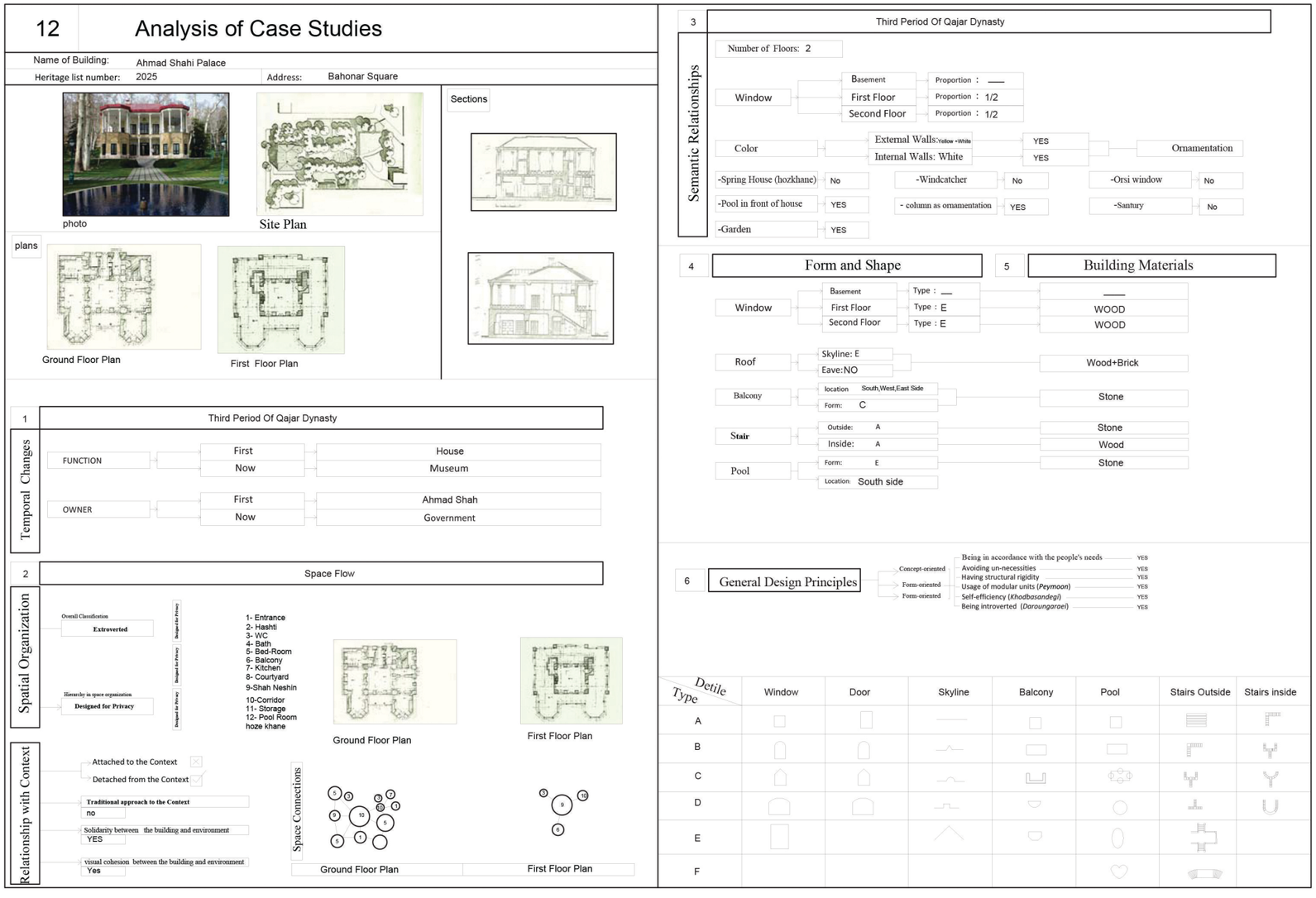


Table 29. Qajar Houses of the Third period - Case study number 3.

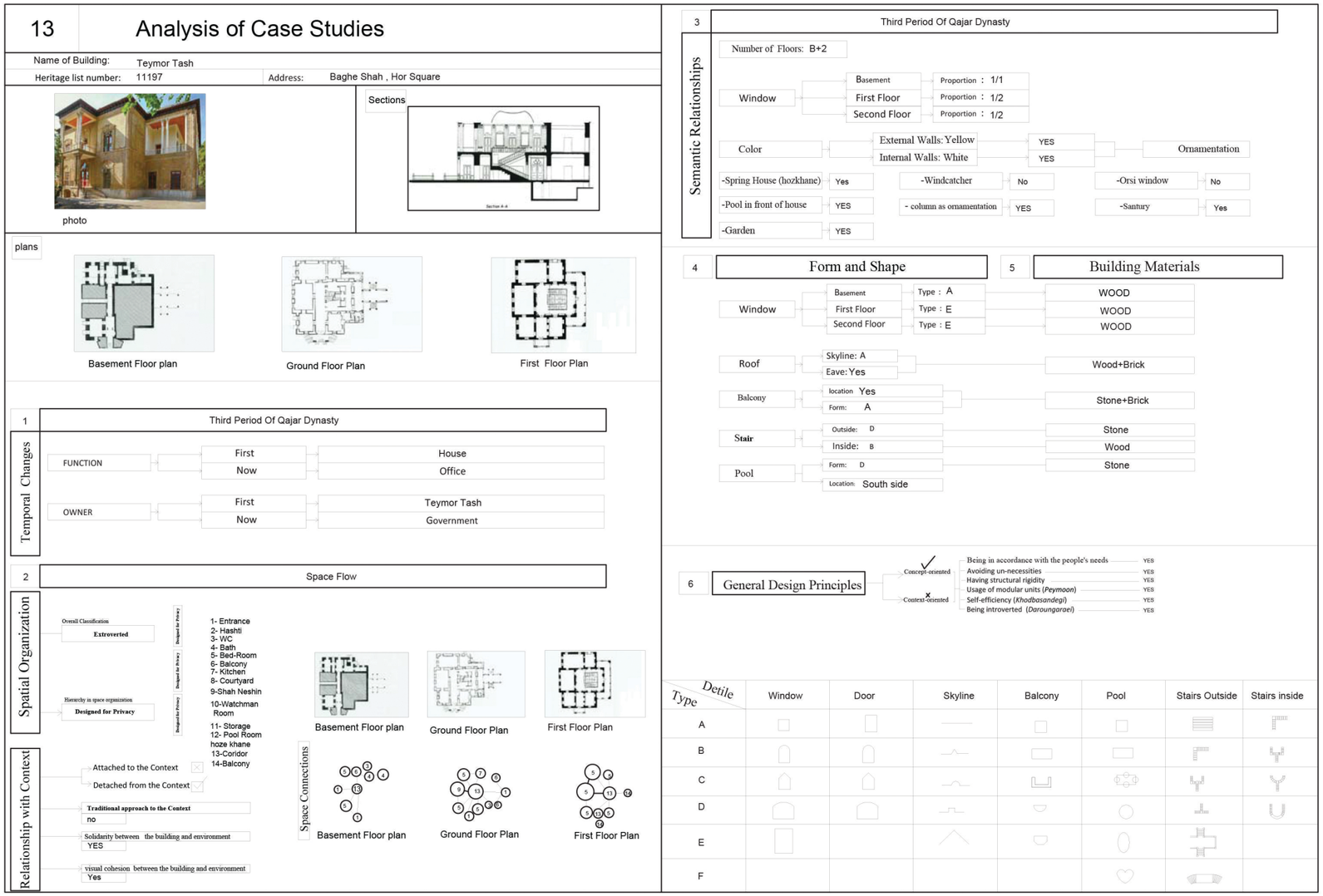


Table 30. Qajar Houses of the Third period - Case study number 4.

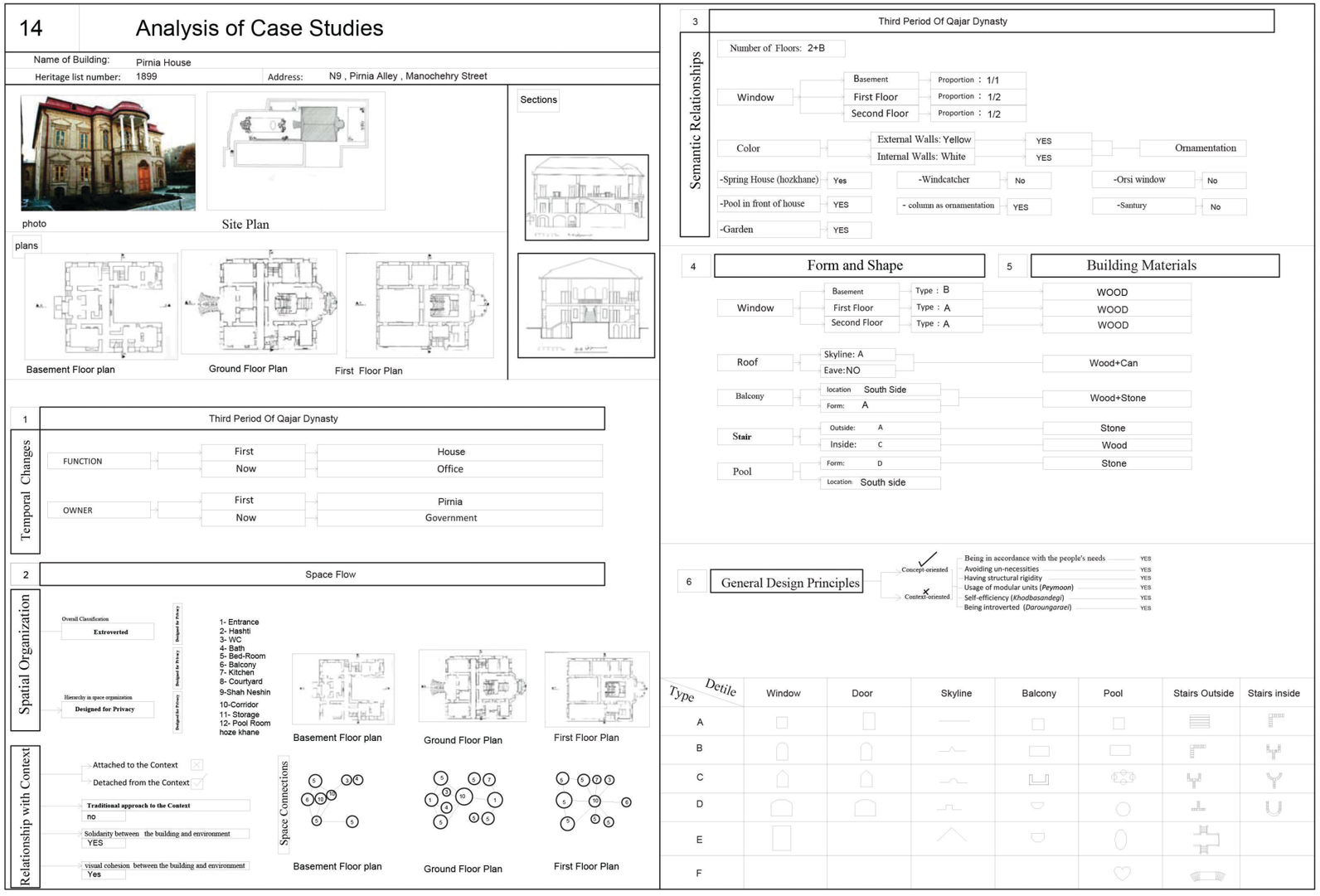


Table 31. Qajar Houses of the Third period - Case study number 5.