



# The Analysis on Articulation (Joint) Space in Matrix of Iranian Architecture Case Study: Forecourt (Doorway Space) of Sigari House at Yazd City

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## Abstract

The historical monuments in Iranian architecture are the proof of the rich and practical experience in creating successful architecture and urban planning collections aiming the sense of place. Considering proper distance between components and making appropriate volume combinations so-called joints are few experiences achieved through this context. This is a far-reaching and comprehensive topic that brings valuable lessons in various architecture and urbanism fields so it is necessary to focus more on this subject. Although collected and reliable research in this area does not exist, but a diffused remarks about the role and the effect of considering this issue in some author's points of view can be found that have been used in this study. Using this concept allegorically in architecture may be practical in various ways so that one can refer to its different types in functional field of articulates such as access, indoor-outdoor, full and blank spaces, and constructional field in material and structural articulates. This research is aimed to study the connected and interstitial spaces especially the forecourt (the open area at the front of the doorway) in order to distinguish the interstitial spaces from other spaces. With the help of this research which the data collection method was through library and field, we can conclude that the forecourt is a sort of dialogue between the visitors and the monument and the monument to the monument itself which try to provide a proper platform to the audiences and visitors and, moreover, the amount of the ornaments and its elements is related to the social, economic and cultural situation of the residents.

*Keywords: joint, different kinds of joint, Iranian architecture, forecourt, Sigari House at Yazd*

## Introduction

The world and universe are composed of a group of regular relations where these communications create harmonic and integrated structures. The cities and constructions have formed, accordingly. But with improper definition of communications in city this linking factor may be converted into a separating agent in city and leads city and construction integration into anarchy. In such relationships, the role of articulation may be identified as creating factor for a consolidated and regular structure in city and also as a converter that may cause change in a location compared to other place. In other words, subject of articulate and articulation is deemed as a route to approach to many fundamental architectural concepts. But unfortunately, they have not been dealt with duly and necessarily as it required. The paradigm of creating demarcation and creating distance among

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various activities, which provide transition and displacement from a main field to another major area, is not a new phenomenon in architectural design. Therefore, it is also as important as other elements per se (Chemayev & Alexander, 1997: 272). Today, the favorable social and economic effects are also visible in design of urban spaces and constructions, which have been created from the individual performance of urban spaces. According to statements of Aldo Van Eyck, during a period of Modern Architectural Movement in which the lack of sense of location by identity resulted from tendency to unorganized space (Lung, 2004:6), many current urban constructions and environment in our country also suffered from problems of environmental upset and monotonous trend. This means that the proper articulate and articulation may play crucial role in matrix and spatial organization of a design and in making some topics more practical including providing security, requisite for design expression, territory and realm, tradition and identity, correlation and continuity,



and more importantly the aesthetic perspective (simplicity and complexity) in architectural and urban fields that it can noticeably contribute to organizing human's environmental imaginations.

### Research Questions

- 1- What is the effect of articulation space on Iranian traditional architecture?
- 2- What is the impact of space articulation in forecourt and doorway in traditional monuments and buildings?
- 3- What is the effect of space articulation in culture and social relations of Iranian people?

### Research Objectives

- 1- Better and further identifying articulate concept and inquiry in types of articulation in architecture
- 2- Revival of previous concepts of articulation and returning them to contemporary architecture
- 3- Returning one of the missing links in Iranian architecture (In traditional architecture, an articulate is assumed as a joint and type of pause space while it has been exclusively considered as functional in contemporary architecture).

### Research Hypotheses

- 1- The articulation concept is employed in designs similar to the past time in contemporary architecture.
- 2- With respect to change in partitions and small sizes of them, the articulation concept in architectural design and contemporary urbanism is as important as its concept in traditional and classic architecture.

### Research History

Many studies have not been conducted in Iran to identify and determine importance of concept and using terms of articulate and articulation in architecture and it has remained only at the level of a definition from articulation and partially from elements in Iranian traditional architecture.

Some results have been derived from the conducted studies in this regard as follows:

- ✓ It has been seen that the concept of space articulation is confused with other spaces such as entrance, communication, and transition space as synonymous. Therefore, it seems

necessary to deal with etymological root of these lexicons. Although terms of articulate and articulation are apparently similar, in fact they are two completely different concepts.

Concept of articulate is the interval space between two objects, which have been put beside each other only for the sake of creating distance.

Therefore, composition of elements in articulation moves up to two correlations to continuity levels. Using this concept allegorically in architecture may be practical in various accessibility forms so that one can refer to its different types in functional field of articulates such as access, indoor-outdoor, full and blank spaces, and constructional field in material and structural articulates (Reza Noroozi, 2012).

- ✓ The space articulation may be searched in wide urban dimensions under some titles such as field, Small Field, Takiyeh, and cruciform market in several markets. For instance, the open space of fields may play typically role of urban articulate or cruciform markets are some articulations in which some events take place such as partition, pause, and or change of use in various elements.

Also some titles can be identified in filter and articulate space in architecture of Iranian traditional houses:

- 1 Porch (partition space), 2) articulate (connection space), and 3) veranda (semi-open space)
- ✓ Articulate: It is assumed as connection space that possesses the feature of both types of spaces i.e. porch and veranda. The articulate is usually created from intersection of axes (<http://www.archiland.mihanblog.com/post/16>)

### Methodology

With respect to subject interpretation, first of all one should achieve proper perception of concept and position of articulate in classic architecture that presents results in analytic- descriptive form. To present the results at first place, we should observe the suggested sample and deal with analysis of forecourt in its entrances and then examine their role and position in the classic period and identify and analyze their elements and parts.

Data collection process is done generally in two forms:

1. Librarian method: It includes the related journals, articles, and results of seminars and books
2. Field study: It consists of visiting from traditional Sigari House in Yazd and observation of its forecourts and their analysis

### Research Concepts and Theoretical Bases

#### Term of Articulate

Term 'Mafsal' (pronounced /mæfsæl/; مفصل : *articulate*) has been derived from Arabic language in which the root of this word 'Fasl' ( /fæsl/; فصل : *joint*) stands for distance and separation and it is used as place of connection (Sayah, 1996: 802). The word 'Mafsal' (*articulate*) that is pronounced /mæfsæl/in Persian (Moein, 1999: 4272), has been lexically defined as bone joints, place of joint of two bone in body (Amid, 2005: 1108). Also, it has been called as place of joint and location of continuity of bone for moving body organs. Similarly, the place of cold and iron joint from which both parts move without separation from each other is also called articulate. In topics regarding description and anatomy, the place of connection and link of bones is so-called articulate as well. The French term of articulation is also used as meaning for articulate (Amid, 2005: 21).

The Persian equivalent for term 'articulate' is 'Band' (pronounced /bænd/; بند). In his Persian thesaurus, Dehkhoda has mentioned the first meaning for entry of 'Band' as the distance among two organs that its Arabic equivalent is called 'Mafsal' (Dehkhoda, 1963: 303). Accordingly, the separation (elastic) state of articulate is deemed as the first step toward its perception. But, Persian term 'Band' derived from infinitive root 'Bastan' (pronounced /bæstæn/; بستن; *closing*) both means the place of connection of two objects and refers to meaning of the connecting fibers among an organ with another (ibid).

Therefore, articulate is place of connection and separation at the same time. From one point, articulate is assumed as connection of the first perceived subject but in terms of the existing elements, the concept of separation and division is prior to connection. In other words, the existing elements in an articulate firstly exercise the separation and then reach to connection. From another perspective, it can be implied that when we say two objects have been connected together that

they are separated from each other the presence of this dichotomy is sign of separation per se.

#### *Articulate Separation (Elastic) Perspective*

The identity of separation of an articulate signifies that the articulate is created at point of separation and among or 'Beyn' (pronounced /bein/; بين : *between*) objects. The English equivalent of word 'Beyn' is term 'between'. The lexical root of this word is derived from Indo-European language as 'two' with its Persian equivalent as 'Do' (pronounced /do/; دو : *two*). It is said that word 'between' is used in English when there are two objects with clear definitions and certain and separate boundaries. Accordingly, term 'between' is defined as the distance among the boundaries where something takes place. The term between means the border and limit of the given object at the terminal limits of those two objects and the end of limit of anything. Frascari, the contemporary architectural theorist argues that the articulations denote process of disclosure or connection of meaning to human-made objects (Frascari, 1996: 512). The articulations give meaning to architecture since as long as nothing is clear and definite, its borders and limits may not be perceived and made sense. Namely, distinction is meaningful in borders and concept is capable to be denoted. Therefore, the articulate is accompanied with and in continuity with definition and identifying something (Rezakhani, 2013: 5).

#### *Articulate Connection Perspective*

It was mentioned that the Persian equivalent of term 'articulate' is 'Band' and it is one of inflections (cognates) of term 'Bastan'. The Pahlavi, and Avestan and ancient Persian terms 'BASTAN' and 'BAND' mean fastening (Ravaghi, 2002: 66). 'Etesal' (pronounced /etɛsɑ:l/; اتصال : *connection*) is one of the existing concepts for articulate in Persian. This connection will be followed by something which its trace may be found in another term in English language.

Frascari believes that the articulations have potential to create order by means of their own order. Frascari concludes that perceiving method of using articulates creates that fundamental process thereby the architectural theories and practice should be trained (Frascari, 1996: 501). As a result, he explicitly expresses that the articulation is start point in architecture. In a reverse reasoning and by means of Greek concept of 'Limit' that is



resuming that is deemed as presence and creation of construction around articulations, it can be said that when an architect designs an articulate s/he may determine presence of elements and parts around that articulation. For this reason, design and execution of an articulate may exceed from limit of that articulate and inversely execution of a good and computed design accurately in this limit may appear much wider than the limit of that articulate. Therefore, an articulate is really capable to organize a totality of architecture. But connection at point of articulation is not type of joint without constraint and rule because in connection of the elements to each other and creation of grid they look for certain scale and size. The 'continuity' that denotes articulate connection perspective is related to term 'پیوند' (link). Losing the real meaning of 'articulate' is due to losing concept of 'size' in connection and link. But what is the meaning of this size? 'Size' denotes measure, limit, value, and degree of anything (Dehkoda, Thesaurus CD).

'Embedding into another size' means 'to place within other degree and rank'. The articulate may align the elements and embed them into modulus. The link and connection that appeared at point of articulation at past time was accompanied to measurement and sizing. The elements were placed within size of each other at the point of articulation that is both in architectural space and form. Such transformation occurred comprehensively in Iranian architecture and has really affected on spatial form, construction and designs form. The elements were adapted and made compatible to other parts placed at their neighborhood Mofid, 1995: 48). This is something that is found in English translation of term 'joint'. But such connection and continuity and this adaptation and compliance that have been led to balance at point of joint includes certain rule, basis, and identity (Rezakhani, 2013: 6).

#### **Joint with Translated Word 'Articulation'**

Nowadays, term 'joint' is employed in theoretical architectural texts in English language. But it seems the term that is used in anatomical science for joint; it may spread the properties of this element more widely. Term 'joint' expresses mainly the connective identity of joint while term articulation includes both connective and separation aspects of joint. The Indo-European root of this term 'ar-' denotes typically as 'continuous together' (The American Heritage Dictionary). But term of

'continuous together' has property that can be found as English equivalences of this word.

Term of 'to fit together' means being proportional to each other and making the same size with each other. Namely, the elements are made with the same size at point of joint (Two quarterlies of Iranian architecture, 2014: 108). In other words, 'Articulation' denotes that we believe that elements should be made with the same size at the point of joint; namely, we may achieve the same concept that is derived from its Persian equivalence.

All terms which are derived from Indo-European root of term 'Articulation' as 'ar-' each of them indicates a different type of the resulting order, proportion, and harmony. Ranging from term 'army' that means military corps to term 'article' that denotes in grammar the concepts of 'joint', 'essay', and as modifier in which the term 'army' includes a perfect systematic organization that totally follows the order and for this reason a member of army is called military man (Rezakhani, 2013:8).

In other Indo-European languages, term '*interest*' has the same meaning: *Inter* (literally among) and *esse* (literally to be) that are totally stand for 'to be among something' (Rahimzadeh, 2004: 205) and term 'to be among something' is the place of joint. Namely, the position of articulation and its presence will be followed by interest and empathy. For this reason, Schultz calls euphemistically call openness (= joint) under title of intimacy by which the opposite elements are connected together (Rezakhani, 2013: 9).

#### **Iranian Architecture**

The architecture includes more 6000 years continuous history in Iran. This architecture that has been manifested not only beyond Iranian geographic borders today, but also it covers wider range in terms of variation. The design elements have also over 3000 years of history in Iranian architecture.

These elements cover wide range from catacomb hall to quadrilateral ceilings and cloverleaf verandas were continually present at various eras and maintained their effect on daily life as well. In fact, Iranian architecture has possessed continuity that has been subjected occasionally to interim and temporary bias due to domestic conflicts and external invasion but it has achieved to a style that is not confused with any other style. At the same



time, it possesses religious and traditional concept and objective, the historical monuments in Iranian architecture depends on some factors including climate, the existing materials, regional culture, neighbor culture, and religion and belief of the founder of the constructions similar to other points of the world.

The foremost principles of Iranian architecture
1. Introversion
2. Avoidance from futility
3. People-centrism (public-oriented)
4. Self-sufficiency
5. Quantitative & qualitative recognition of materials

Table1:

(Source: Authors)

Pre-Islamic styles	}	Iranian architectural styles
1) Pre- persian Era		
2) Achaemenid era (Persian)		
3) Parthian (Arsacides & Sassanid)	}	1) Pre-Islamic era
Post-Islamic styles		2) Post-Islamic era
1) Khorasani style		
2) Razi style		
3) Azeri style		
4) Isfahani style		

Table 2:

(Source: Authors)

**Forecourt in Architecture**

Most of houses, especially the houses of wealthy people, include doorway (entrance). Doorway is a part of building through which transportation to and from the building is done. The doorway covers counters (pivot and forecourt) front door, court, porch or portico, atrium or corridor.

The forecourt is called to wide space at the front of entrance fore-arch in some of edifices and important buildings. The Persian term of ‘Jolokhan’ ( pronounced /dʒoloka:n/ ; جلوخان : *forecourt*) is composed of Turkish word ‘jolo’ ( pronounced /dʒolo/ ; جلو : *front*) and Persian word ‘khan’ ( pronounced /ka:n/ ; خان : *khan*; i.e. caravanserai, house and home) that means the front house, before doorway, and open area at the front of doorway and mosque and caravanserai and pilgrimage house (shrine) (Sokhan Great Glossary, vol. 2, 2002). In

some of Iranian cities the forecourt (or front house) is synonymous with fore-arch structure. This term has been used in Iranian architecture in various sources since Safavid Era and it has been prevalent during Qajar period. The space and entrance façade in important buildings have not been highly appreciated up to Seljuk era. Since Seljuk period, construction of fore-arch structures and beautiful forefronts was prevalently and some spaces such as corridors, porch, and veranda were designed. Afterwards, in Ilkhanites era, construction of fore-arch structures and high-rise forecourts became important to focus on entrance space and façade as well. With such a background, the entrance space was noticed by architectures as some part of construction in important buildings in Timurid period in such a way that the entrance space was considered as an important part of building in Bibi Khanom Mosque at Samarkand (Sultanzadeh, 1993: 25-26).

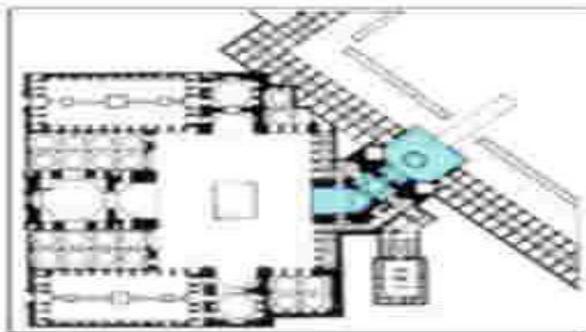


**Fig (1): A classic portraiture from Bibi Khanom Mosque and the market at its front (Source: Wikipedia)**



**Fig (2): Forecourt of Bibi Khanom Mosque (Source: Wikipedia)**





**Fig 3: Plan of Isfahan Imam Mosque (Shah's Mosque)- (Source: Google)**

Construction of forecourt in mosques was a solution for removing problem in construction of them. For example, in Isfahan Imam Mosque (Shah's Mosque) where the mosque entrance was not toward Qibla direction, with construction of a forecourt plus a fore-arch structure and porch, doorway was built toward Qibla direction and mosque entrance space was harmonized with Naqsh-E-Jahan Plaza (ibid, 28). The forecourt and entry space was especially important in palaces and it was often build magnificently and if a palace lacked forecourt, they occasionally preferred to build a forecourt or field for it. Thus, in some palaces such as Shams-Al-Emirate in Tehran that has been built by means of European style and it lacks forecourt, defect of this element is tangible.

The forecourt in desert caravanserais was built too wide. Some examples of urban caravanserais include Isfahan Mahyar Caravanserai that was built at Safavid era then this style was prevalent during Qajar period. Building of forecourt was prevalent for houses of wealthy people during Qajar period. Construction of forecourt was also noticed in gardens with accurate design as this style was common in Qajar era.

Forecourts were built in markets and malls as central space to connect with other buildings such as mosque water storage etc (Motamedi, 2002: 228). Façade in all forecourts were usually decorated with several adornments such as tile-work and stucco (moldings). If forecourt was situated beside the plaza and it was probably affected by space of field, they separated forecourt territory from space of field by construction of a platform or parapet. This style was executed with construction of a platform in Isfahan Imam

Mosque. Similarly, it was prevalent to build a pool with proportional dimensions in many forecourts, especially forecourts of mosques (including Imam Mosque, Sheikh Lotfollah Mosque in Isfahan; Tehran Imam Mosque, and Yazd Grand Mosque). During recent decades, some of these pools have been destroyed and some changes have been exerted in space of forecourts.

The period of thriving trend of building forecourt belonged to Qajar era and in numerous buildings at this era, particularly mosques and schools. At this period, unique mosques were built with large forecourts and tile-work and molding decorations such as Sepah Salar Mosque and School (Shahid Motahari), Tehran Imam Mosque (Sultani, Shah), Qazvin Masjed-Al-Nabi (Prophet's Mosque), and Imam Khomeini Mosque at Yazd (Shahzadeh, prince). Design of forecourt in Indian architecture during Goorkanid era has been closely related to Iranian architecture as well and especially it has been employed for construction of grand sepultures. The forecourt that was built on the opposite side of southern front at Taj Mahal was the continuance of a style that has been already executed in Jahangir's tomb. This term is well-known as 'Chok-e Jolokhaneh' (pronounced /tʃok-e dʒoloka:ne/ ; چوک جلوخانه : *forecourt field*) in Indian architecture (Koch, 1991:98). Following to building of entrances in Iranian architecture, the forecourt that was built by retreatment and or protrusion to public passage included several uses. The foremost function of this structure was to create a mediating and transitional space among outdoor and indoor spaces. Therefore, forecourt was a place for stop and waiting a location for connection between public or semi-public or private or semi-private spaces, a point to change direction of moving route, escorting and welcoming. One can assume forecourt in mosques as the distance among normal outdoor space and conceptual indoor space. One of social uses of forecourt was to employ it for normal gathering or holding some ceremonies so that some of national or religious feasts and mourning ceremonies were held within forecourt space or entrance fore-arch area in important monuments and people decorated fore-arch and forecourts and edifices upon feasts and happy ceremonies and even slaughter sheep as sacrifice at the front of forecourt (Sultanzadeh, 10993: 175). The forecourt included economic use as well. Some shops were built in various sides of it

and retailers were stationed there and process of purchase and sale of various commodities was done, especially in forecourt at markets. Sometimes, forecourt was the place of installing friezes, endowment letters, and orders. The forecourt of Tehran Imam Mosque is an example of that group.

In order to identify better and further forecourt in architecture, we classify the forecourts based on their form, rate of social interactions, decorations, and the existing elements. Overall, the forecourts are divided into three classes. The first group that is the simplest form of forecourt is visible in external bodies of rural and urban houses. These forecourts distinguish access to inside the building from the passage with a brief retreatment from the passage in addition to adding importance to indoor space. This is occasionally called fore-arch structure as well (Sultanzadeh, 2011: 70). This class of forecourts that devotes smaller space than other their various types includes a lot of variety in details, decorations, and portraitures. The constituent elements of that class comprise of fore-arch, front door, doorway, and generally old-sitting platform.

Second group of forecourts is proposed as a defined space at the front of doorway and as the primary phase of entry it devotes the boundary among interior and exterior parts. The forecourt has been observed as wider space than the first group in this class and it plays role among building and passage and allocates more prominent role with wider range per se. this group of forecourts are more rich and prominent than first group in terms of details and decorations and they include higher front door and sometimes wider old-sitting platform. But popularity of this class in houses is reduced more than in first group. In doorway, front door that is often decorated with bricklaying bond, cornice, and or vaulting, façade arch and old-sitting platform are included in this class. This group of forecourts is visible generally in prominent house that belonged to special and well-to-do people at city or village. In addition to specific housings, doorways in public buildings such as mosques, schools, markets, and bathrooms play role in this regard (Quarterly of Rural Housing and environment, 142:8).

At the third class, forecourt is shown as wide space form or often a small field at the front of doorway based on playing role of various behaviors of users in this area. This type of forecourt is visible in

urban or rural great and main public buildings including grand mosques as well that it may also include fountain and or some shops and thereby it communicates further with surrounding public environment. Thus, forecourts in houses play role ay different scales and sizes. Size and magnitude of forecourts are closely related to position and importance of house. The forecourt in a prominent and large house that belonged to salient persons and urban or rural rulers is built proportional to the behaviors are done in them. Given the quantity of audiences and various referents and several behaviors, which are done in it, the forecourt has different position while the forecourt of a simple house at the heart of a locality is proportional to rate of importance and function of building that is built at smaller scale (Quarterly of Rural Housing and environment, 142:9).

### ***Forecourt Joining Elements to Building***

#### **Doorway**

The paramount role of a doorway is to control input and output of house and the users enter in or exit from the house after passing through this area. Dimensions, decorations, and proportions of this area are determined with respect to entrance proportions, which related to position and importance of house and its inhabitants per se.

#### **Front door**

Some part of the wall above the building doorway is called front door. Particularly in large houses, this party includes some decorations such as bricklaying bond, tile-work, molding, cornice, and types of vaulting.

#### **Fore-arch**

The fore-arch is one of these elements, which are visible in various forms and it is seen as a covered and semi-open space at the front of entrance portal. In other words, the continuous part to building locating at external point creates a covered spaced for the portal. With respect to function of building, dimensions and decorations may also vary in fore-arch. As the house is more prominent with wider forecourt; proportionally, dimensions become greater in this fore-arch as well and they include more decorations. Sometimes, fore-arch is also called forecourt.

#### **Old-sitting platform (Pir Neshin پیرنشین)**

Old-sitting platform (side doorstep) is one of the elements of forecourt in Iranian traditional houses.

The side doorstep is placed as a platform with height proportional to sitting in building outdoor space and within the border among inside and outside of building. These platforms are generally placed in even form at both sides of doorway. Sometimes, more numbers of old-sitting platforms have been observed in some sampled houses. Also often some of forecourts lack old-sitting platform. In some cities old-sitting platforms are also called 'Khajeh Neshin' (pronounced /ka:dʒɛ nɛʃɪn/; خواجه نشین *Master-sitting platform*) (Sultanzadeh, 2011: 94) and or 'Pakhoreh' (pronounced /pa:kore/; پاخوره; *foot-trodden platform*) (Pirnia, 2010:143). The Master-sitting platform is generally designated for sitting of old people and to remove tiring. Benefitting from old-sitting platform in forecourts, an appropriate place is provided for a suitable location for resting of pedestrians for a few but short minutes to the audience and a place for pause, pondering, and appropriate platform for interaction between referents and audiences. Also sometimes the old-sitting platform has been utilized for mounting on quadruped in the past time (Pirnia, 2010: 143). The old-sitting platforms play an essential role in organizing the behaviors within forecourt space. Also function and importance of old-sitting platform is increased proportional to dimensions of forecourt and it devotes wider space per se.

#### **Position and Role of Forecourt in Housing Architecture**

The spaces can be classified in architecture into two categories of passage and presence spaces. The passage space is the area that is designated to passing and motion while the presence space is considered for attendance and pause in that space. Probably, some passage spaces include simultaneously presence space as well. It has been tried in forecourt during location in passage space and in some passages at best to provide high-quality space for presence and preparation for entry into the house. In addition to the role that is played by forecourt in organizing social interaction in house outdoor space, it converts the motion space into a space for pause and thinking. The audience can perceive better in outdoor environment and especially building with presence at that place. It can be mentioned that it is tried in forecourt to prepare the ground proportional to position of audiences. In defining 'forecourt', Falamaki writes:

"Before start of passing through internal path of architectural space, particularly in those varieties of public places and especially spiritual and divinely locations, there is chapter in Iranian architecture that is deemed as a prologue for what is visible inside. Entrance into mosques and to caravanserais as well as public baths similar to architectural space that was usually symmetric and acted as a shelter within distance among house doorway and alley and passage with acceptable proportions where their construction was prevalent by several past decades as an articulation that relates indoor space in architectural- urban units to their outdoor space and or vice versa are considered as one of the original characteristics of architecture in our country" (Falamaki, 2006: 363).

The forecourt can be analyzed from connective aspects (connection with other elements) including inside and outside relation (one of the paramount functions in forecourt) that comprises of 1) determination of limit; 2) Invitational nature; and 3) Improvement of hierarchy for entry in building and to perceive the building better for creating space for social interaction for three classes of 1) Building dwellers, 2) building neighbors, and 3) pedestrians beside the buildings as well as some items such as shape and form of forecourt and decorations and materials and thereby to find its position and role in Iranian traditional architecture.

#### **Building Entrance**

The entrance is allocated to entry into a building or a room in the given construction and or the defined territory of the outside space that requires passing through vertical surface that distinguishes this space from another or separates here from there (DK Ching, 2008:256). In other words, it denotes entry into the space that separates the external part of house from its interior space.

Entrances can be conventionally classified into the following categories or groups:

- {1) *The same level with surface of wall*
- {2) *protruded and retreated*

The entrance, which has been already called porch, was designated for residential houses. At present, the entrance is utilized as a separation part at the external point of house from the interior unit so that all interior spaces of house not to be noticed with entry of guest. The articulation entrance is a space including outdoor and indoor units. Whereasthere



there is no connection between two spaces without intermediate part in Iranian architecture thus several other spaces form the entrance elements based on certain hierarchy. This compositions and spatial organization form between two open spaces and two closed and semi-closed spaces. (<http://www.badroodmemari.blogfa.com/category/195>)

Two architectural spaces such as house and passage may be rarely placed along with each other immediately. But in general, they are related to each other through four-side, space openness 'Seheh' (pronounced /sehε/; *space openness*), bracing, and porch. 'Seheh' (صحہ) is the opening of space thereby it usually opens the entrance of some housing units (ibid).

Any entrance plays this matrix and functional role. Of other matrix role of entrance one can refer to provision and monitoring of connection, controlling, permeability, prominence and legibility, or acceptance or invitational nature. Formation of entrance as entrance as one of the efficient elements in introducing paradigms and theories is related to their own period and it forms proportionally in harmony and continuity with facilities and functional goals and doctrines of the given era. One can call some the classic works to contribute to designing entrance. Of what is effective in formation of entrance spaces in various civilizations and styles, one can imply the natural and social circumstances of the zone, religion, and social and cultural systems etc (DoostiMotlagh, 2009:2). The elements that form entrance organization in other compositions are as follows: Table (3):

The constituent elements of entrance are responsible for invitational, distribution, and guidance role. Sultanzadeh has divided the entrances in Qajar era into three types:

**Traditional entrances:** The main elements of one of the formative compositions in entrance space that has been already utilized in Tehran and some other cities are as follows: A cruciform arch to cover the aperture, two platforms at both sides of doorway, a wooden door with two rectangular pivots and

Table (3):

<b>Platform:</b> A location at both sides of doorway for resting upon waiting and for entering into dialogue with neighbors;
<b>Entrance front door:</b> A decorative crescent above door and the only external part of house this often decorated with tiles and it is usually built in such a way that it protects the people from snow fall and raining in winters and acts as barrier against direct sunlight in summers as well. Some verses of Holy Quran and or religious phrases were inscribed on it so that the pedestrians can enter and exit from under Quranic verses when passing.
<b>Doorway:</b> In most of traditional houses, doorways are made from wood with two hinges and any hinge has some knocking knobs as well. The women were knocking the knob with high pitch sound while the men knocked the hammer-like knob that produced low-pitch sound.
<b>Porch:</b> We may reach to the porch immediately after entrance. It is often in octagonal form or a half of octagon and or mainly four- side shape. The porch includes low-height roof in which a small aperture is located in its dome ceiling and generally some platforms have been designated for sitting on it. The porch was built for ramification of various part of house and often for accessibility to several houses. In large houses, the indoor space and residences were also led to the porch and often two parts were built to separate men from women.

metallic doornails and knobs and two brick buttresses in both sides of entrance opening on which the bases of arch were placed. In most of cases, buttresses and roof cleavage above the entrance space have created a rectangular frame in two gusset plates locating among sides of rectangle and opening arch lines in which it has been decorated by brick designs or tiles.

**Semi-traditional entrances:** In Qajar era, using full-round or single-compass (plan center) became prevalent to cover the opening in many chambers and portals or aperture of entrance spaces. In some of these spaces, some platforms (old-sitting) were built in both sides, which were used for sitting. But sometimes these platforms lacked adequate surface for sitting and they were only built for creating formative and spatial composition. There are also some items without platform. In some of entrance spaces, some full occupied and various designs and portraitures were designed and executed by pottery



and sealed bricks on buttresses and other spatial surfaces, especially on frieze of front door. Depth of these entrances was usually about a half meter but their width and height were about 3-4m and 3-4.5m respectively.

*Modern entrances:* At the end of Qajar era, application of non-traditional formative compositions became prevalent that often was under influence of Russian architecture, Europe, and travelling foreigners to Iran and Iranians to Europe and particularly construction of embassies and the building belonged to Europeans. They were decorated with various types of harpsichord-like, curved harpsichord form, and helmet-like shapes simply or along with various arabesque designs, brick node building and tile-work. In many cases, these decorations and designs were utilized on front door of buildings and often simple buttresses without decorations were mainly used unless in exceptional cases when pottery and sealed brick were used to decorate buttresses. Sometimes, composition of column and pilaster with different shapes were utilized individually or in pairs and other decorative elements and forms in any side of the entrance (Two quarterly of Armanshahr (Utopia), 2:101).

### Research Findings

#### Sigari House

According to the existing registered instrument No 1847 in Iranian Cultural Heritage and Tourism and Handicrafts Organization (ICHTHO) various part of Sigari House were related to the early, middle, and end of Qajar era when at that period it has been used as residential house. But the founder or sponsor of this house is unknown and building some part this house is attributed to Pahlavi period. At Pahlavi First King's era, use of this building was changed into a school and approximately for 20 years since 1921 it has been considered as Tadayon School and one of important schools in Yazd city. After period of this school, this building was bought by Mr. Akhavan Sigari and it was owned by Sigari family for 50 years (the late Mr. Hajji Abdul Hossein Sigari). After buying this house, Mr. Sigari exerted some changes in this construction including building of work office in interior part and or conversion of 5 doorways into 4 doorways where Eng. Oliya argues that it is imitated from Russians for which some unessential intervention has occurred for such windows and many spaces

(excerpted from handwritings of Dr. Jeddi). This construction was deserted for some period of time and due to this issue it has suffered from a lot of damages until in 2011 the repair operation has started for this building.



Fig 4: Axonometric image of Sigari House in Yazd (Source: Yazd Cultural Heritage Organization)



Fig 5: Plan of ground floor in Sigari House in Yazd (Taker: Yazd Cultural Heritage Organization)



Fig 6: Plan of ground floor in Sigari House in Yazd with focus on southwestern entrance (Source: Authors)



Fig 7: Southwestern entrance of Sigari House in Yazd (Source: Hadi Razavi)



Fig 10: Plan of ground floor in Sigari House in Yazd with focus on southeastern entrance

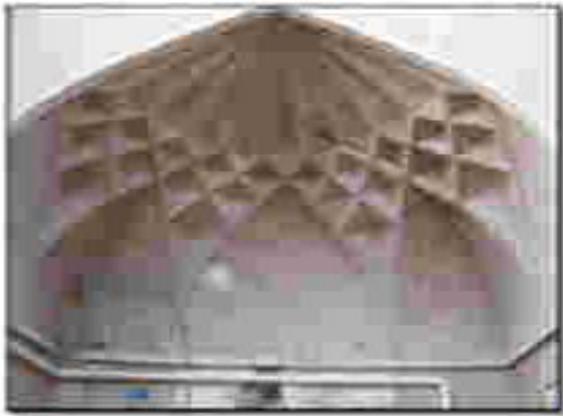


Fig 8: Southwestern entrance arch Sigari House in Yazd (Source: Authors)



Fig 11: Southeastern entrance (Trading House) in Sigari House in Yazd



Fig 9: Southwestern doorway in Sigari House in Yazd (Source: Authors)



Fig 12: Southeastern entrance arch (trading house) in Sigari House in Yazd

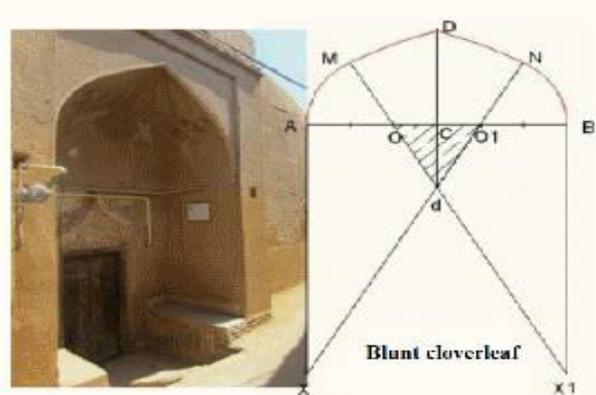


**Fig 13: Southeastern entrance (trading house) in Sigari House in Yazd**

**Building Southwestern Entrance (Building Minor Entrance)**

This entrance is located at southwestern side of the house. With respect to few and partial decorations of this building we conclude that it is a minor entrance, which connects alley to outdoor yard and it is about 30cm higher than outdoor yard (via a step). The doorway is made of wood and similar to doorways in previous buildings it includes two knocking knobs (feminine and masculine) for referents to this construction and there are two platforms old-sitting platform in both sides of doorway for connection with referent people to this building and or a location for resting of pedestrians. To become prominent, forecourt of this entrance has been slightly retreated from building wall and the passage and displays it. The blunt cloverleaf latch has been employed to cover the forecourt where this type of latch was utilized because of loading potential, beautiful form, and its composition with curve (Figs. 14 and 15). Under the coverage, vaulting decoration (drawn bond) with thatch coating (local materials) was utilized (Fig 16). Whereas the vaulting creates secondary coating for the main arch thus it assumed as a good thermal insulator and at the same time due to creating some cracks it is also sound-acoustic and prevents from unsuitable tone. Decorative arch had been executed above the building door using sharp goat's horn where some slight changes exerted in its shape due to repair and it has been converted into helmet-like arch (Fig 17). Bricks were used as materials in construction of forecourt and its related

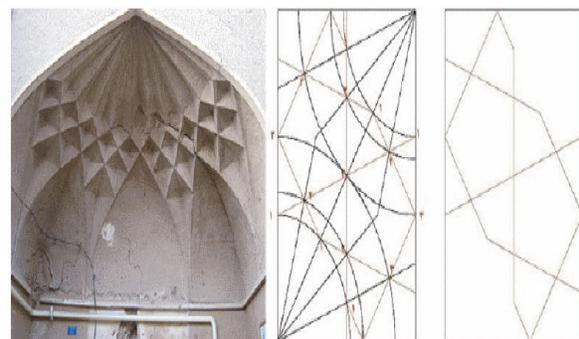
element and it was covered by thatch coating. The brick were placed vertically in construction of old-sitting platforms to tolerate loading and prevention from their fracture and onionskin squared bricks have been utilized on old-sitting platforms (Fig 18).



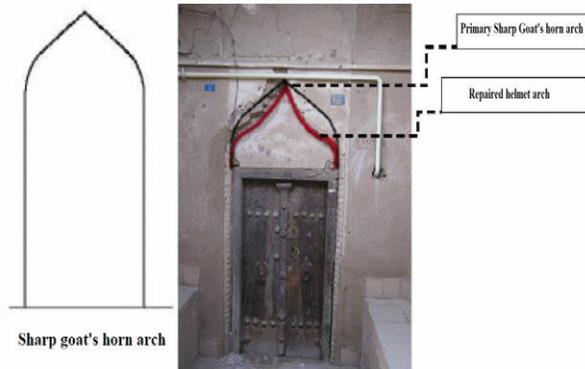
**Fig 14: A view from southwestern entrance and entrance elements in Sigari House in Yazd (Source: Authors)**



**Fig 15: Using blunt cloverleaf latch in southwestern entrance coverage in Sigari House in Yazd (Source: Authors)**



**Fig 16: Application of vaulting under southwestern main entrance coverage in Sigari House in Yazd (Source: Authors)**



**Fig 17: Application of sharp goat's horn arch above southwestern doorway in Sigari House in Yazd and deformation of arch after repair based on the current form (Source: Authors)**



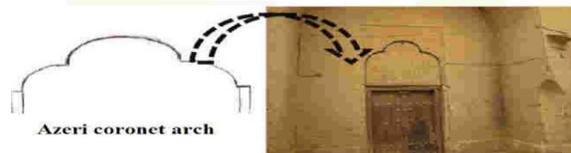
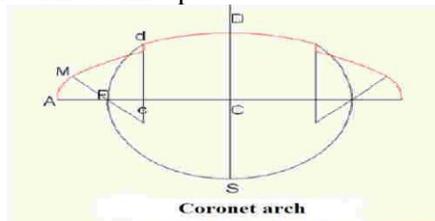
**Fig 18: Application of four-squared brick on floor and body of old-sitting platform and forecourt pavement (Source: Authors)**

**Building Eastern Entrance (Trading House Entrance)**

The house includes two separate entrances: one is articulate and busy (trading house entrance) and the other is small and simple (minor entrance). The major entrance includes front door and porch (covered with the given beautiful vaulting) is led from the one side to eastern patio relating to trading house and on the other side it is connected to large and main yard of house through a corridor. There is a simple porch behind the forecourt of this entrance with beautiful vaulting roof that is led toward main yard and trading house (Fig) and its decorations only consist of front door decorations. Decorative arch above the front door is in form of Azeri coronet arch that was used for coverage of horseshoe portal with the small or great openings of this arches and inside this arch has been covered by flat or stretcher bond bricklaying (Figs. 19 and 20).

The structural arch of forecourt in trading house is type of blunt cloverleaf arch similar to structural arch in minor forecourt (Fig 21). Its door is wooden with two knocking knobs. In order to separate wall at the bottom of it has been covered from the passage floor (skirting) with brick up to 40cm height and the final coating of forecourt is made of thatch (Fig 22). A rafter is placed on the wall at right side of forecourt to install lighting elements and conveyance in wall (Fig 23).

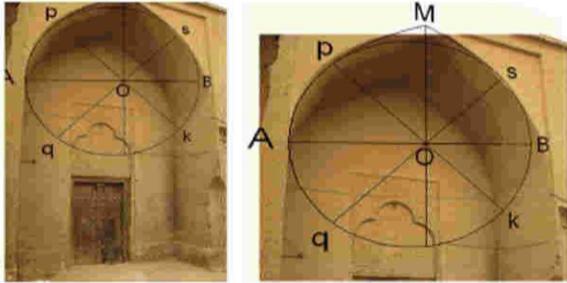
After doorway, we come to coating of porch with beautiful vaulting (Fig 24) above which and for anchoring the coating force of portico there is an alcove that both provides lighting for porch and contributes to its ventilation (Fig 25). There are some spaces for sitting around porch and presence of sitting platforms inside porch signifies lack of old-sitting platform in forecourt. The semi-elliptic arches have been used in coverage of platforms that were decorated by vaulting (Fig 26). Pavement of this area is done for creating pause and or slowing motion of cobblestone. Doorway of yard in trading house returns to this space.



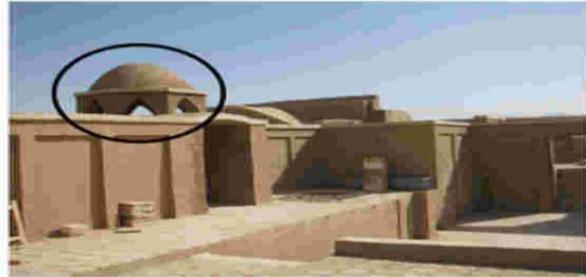
**Fig 19: Application of decorative Azeri coronet arch on front door (Source: Authors)**



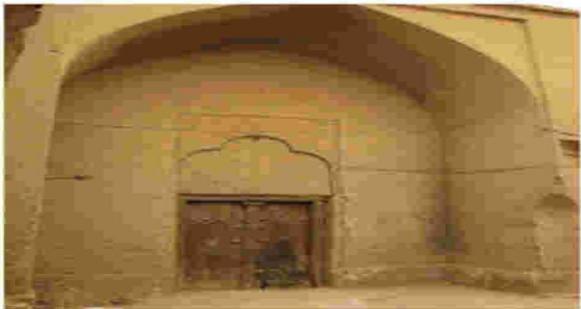
**Fig 20: Stretched and vertical bricklaying bond inside arch (Source: Authors)**



**Fig 21: Using blunt cloverleaf structural arch in building southeastern forecourt coverage (Trading House entrance) (Source: Authors)**



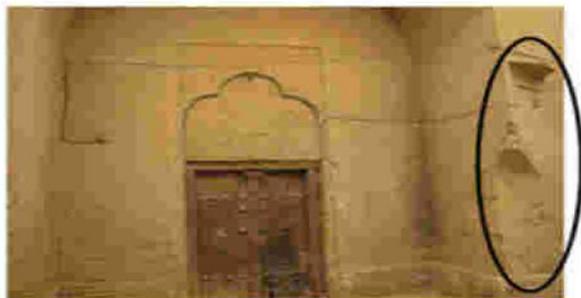
**Fig 25: Alcove above porch coverage in trading house entrance (Source: Authors)**



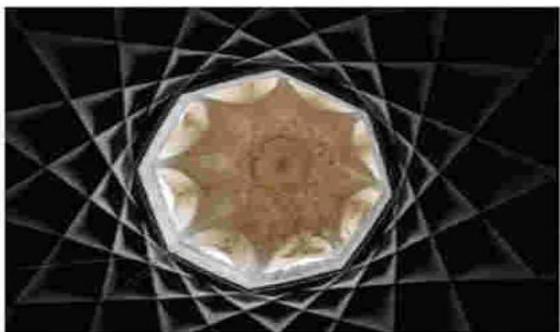
**Fig 22: Specifications of doorway and forecourt elements (Source: Authors)**



**Fig 26: Entrance porch and door of trading house (Source: Authors)**



**Fig 23: The existing raft for lighting in forecourt wall (Source: Authors)**



**Fig 24: Coverage vaulting of entrance porch in trading house (Source: Authors)**

## CONCLUSIONS

With respect to the conducted studies, we conclude that the forecourt has been highly developed in Iranian classic architecture. But by considering these developments, it has been deemed as an important and significant element and embedded in houses of wealthy people and very large and luxurious public canter and acted as a factor to separate passage from building indoor space. Forecourts are supposed typically as a dialogue between referents to building and the given construction while trying to prepare the ground with respect to position of audiences and referents to the building and the quantity of decorations and its elements depends on social, economic, and cultural status etc of inhabitants of building. The forecourts are either protruded or retreated from the passage or outdoor space. The local forecourt has been employed as a place for stop and waiting and location for connection with public or semi-public and or private or semi-private spaces and point to change moving direction, escorting, and welcoming.

## The Analysis on Articulation

One of social functions of forecourt was its use ordinary gathering or holding some ceremonies so that some of national or religious feasts or mourning ceremonies such as Taziye (Imam Hossein Mourning) were held in forecourt space or entrance fore-arch of important buildings and fore-arch and forecourt of large houses and buildings were decorated upon feasts and happy ceremonies and even they slaughtered sheep at the front of forecourt.

The forecourt has also included economic function. Some shops were built at various sides of them and the retailers were stationed there and types of goods were bought and sold in markets forecourt. Sometimes, the forecourt was the place for installation of inscriptions, endowment letters, and commands.

Of other communicative aspects of forecourt (relation with other elements) one can refer to relationship among inside and outside (as one of the paramount functions of forecourt) in three units of 1) determination of limit, 2) invitational nature, and 3) improving hierarchy for entrance in building as a platform for better perceiving of building and creating space for social interactions to three groups including 1) building dwellers, 2) building neighbors, and 3) pedestrian beside the building.

The forecourts have been built in three forms:

- 1) The simplest form of forecourts has been used in most of buildings and it relates passing into the building with a little retreatment from passage route.
- 2) The forecourt is a predefined space at the front of entrance with more decorations and elements

than in the first group. This type of forecourt belonged to well-to-do families and important persons.

- 3) The forecourt plays role in several behaviors of its users in this area by wide space form and often as a small field at the front of doorway. This type of forecourt has been utilized in great and main public buildings.

The forecourt elements are as follows: Door, front door, fore-arch, old-sitting platform and decorative elements.

The present study is aimed at better and further recognition of 'articulate' concept and identifying certain rules and principles which were present at the point of articulation and as a result with adequate identifying of articulate (joint) and finding its role and position in architecture and especially the forecourt, it is expected that this new recognition to lead to new perception of concept of articulation in architecture and to open modern attitude in mind of architects. The result of this study may be assumed as basis for higher goals such as training and design of articulates and their valuation and importance for position of forecourt and entrance in modern architecture in order to make architects to attach value for this elements similar to past time and to propose comprehensive and perfect designs for today forecourts and entrances and in addition to role passage and transportation to provide welfare mentally for inhabitants as well as appropriate communicative and social functions instead of only acting as entrances for passing aspect as it seen in this entrance (only for passing).

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