

Research Paper

The Inside-Outside Relationship of Traditional Houses: A Case Study from Yazd, Iran

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Received: March 2022, **Revised:** July 2022, **Accepted:** September 2022, **Publish Online:** October 2022

Abstract

This study aims to investigate the relationship between inside and outside in traditional Yazd houses from the late Safavid period until the end of the Qajar period. The methodology involves a combination of psychological and phenomenological approaches, and two perception levels are observed: accessibility and social-cultural perceptions. Parallel to the literature survey, the field study analyzes observations of episodes and sequences of the transition from exterior to interior, which were identified and studied utilizing 39 case studies (28 Muslims and 11 Zoroastrian houses). In addition, semi-structured interviews with 11 residents and in-depth interviews with 18 experts who have lived in such houses were performed. Analysis shows that there is a convergence between inside and outside in reacting to both perceptual aspects in the participants' cognition and behavior. Inside and outside of the cases, there are non-net boundaries at both perceptual levels, and they are overlapping and related together. According to the findings, the inside-outside relationship has taken place in at least four layers: outside out, outside in, inside out, and inside in. The inside-outside couple develops a hierarchy based on the 4-layer conceptual model, having the outside guard the inside. The hierarchy's length changes from case to case and gets more extensive or compact. It has also resulted in decisions on the size, quantity, and quality of the house's courtyard(s), as well as neighboring enclosed areas. Furthermore, there are inside-outside social interchangeable relationships that result in social-cultural fluidity in houses when family life is not routine for some social activities. Boundaries are created and altered in this respect based on the situations and requirements of the inhabitants.

Keywords: *Dwelling, Outside out, Outside in, Inside out, Inside in.*

1. INTRODUCTION

There are several interpretations of the terms "inside" and "outside". Merriam-webster (2022) definition of "inside" includes four entries: 1) an interior or internal portion or place: the part within, 2) an inner side or surface, 3) a position of power, trust, or familiarity, and 4) the area nearest a specified or implied point of reference. There are also four choices for outside: 1) a place or region beyond an enclosure or boundary/ the area farthest from a specified point of reference, 2) an outer side or surface, 3) an outer manifestation: appearance, and

4) the extreme limit of a guess: maximum. According to these entries, there is a hierarchy of issues addressed by these two words: physically (in and out) and non-physically (privacy idea). Following the presence of many perspectives of inside and outside in general, multiple perceptions of the relationship between inside and outside in architecture may be considered. Let us refer to the experts' perspectives to develop the meaning of "inside" and "outside" as essential themes in this study.

According to Venturi (1966), the contrast between the inside and outside may be a key representation of contradiction in design. He went on to explain that the

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primary function of building interiors is to contain rather than direct space and to isolate the inside from the outside. Venturi (1966) stated that designing from the "outside in" as well as the "inside out" generates crucial tensions that aid in the creation of architecture. He defined two essential ideas in architectural design that deal with the required interplay between inside and outside. According to Bachelard (2000), inside and outside create a dialectic of division, but they are constantly ready to be reversed, to swap their anger and confusion. They either overlap or exclude each other and if a boundary surface exists between them, both parties suffer. According to Bachelard, on the surface of being, the being seeks to be both evident and veiled, and the two spaces of inside and outside exchange. Inside and outsideness are essential components of place identity, according to Relph (1976), and being inside is an important trait by which space evolves into place, and this quality remains the deepest sense of dwelling. As an alternative interpretation of the Relph viewpoint, Seamon and Sowers (2008) established the modes of existential inside and outside. Norberg-Schulz (1974) discussed the interplay of levels that correspond to the structure of existential space, claiming that certain examples, like dwellings, bring us "inside", while others, like cities, keep us "outside".

Arnheim, Zucker, and Watterson (1966) started with the origins of inside and outside, believing that these concepts reflected a dualism of indirect human cognitive experience. They stated that architecture differs from the visual arts in terms of inside and outside:

“Architecture has to deal with outside and inside although it shares with literature this privilege of reflecting the basic dichotomy of the mind. But by no means does the conception of the interior require an inversion of ordinary space experience”.

Norberg-Schulz (1983) investigated how the building's threshold divides and connects the outside and inside, indicating that one is strange and the other is familiar. It's a point of convergence where one might gain a fresh perspective on the world before returning to Earth. Based on Merleau-Ponty's perspective, Olkowski and Morley (1999) studied the dualistic limitations of inside and outside and their consequences in the phenomenological approach. Norberg-Schulz (2000) emphasized architecture's coherence between the inside and outside worlds, characterizing architecture as a meeting of the two. He asserted that the inside-outside relationship, which is more concerned with quality than quantity, is critical to the uniqueness of the arrival pattern:

“The arrival entails a transit from one zone to another, and it occurs by crossing a threshold. First, the new place appeared at a distance, when we are still outside of it, then we drew closer, and now we enter it” (Norberg-Schulz, 2000).

According to Skinner (2003), inside and outside in architecture are significant from three perspectives: aesthetics, semantics, and spatial form. Aesthetic and semantic features can be produced and retained in individual and social memory. Grietēna (2015) argued that there is an urgent need to restore the integrity of indoor/outdoor spaces and asserted that environmental harmony and wholeness are essential while achieving a balance in the dialogue between inside and outside is also expected. Kim (2015) proposed a link between inside and outside that is momentarily and physically exposed to the audience's viewpoint, and architects would lead the audience out of divergent variables and guide them to internal aspects. As a result, there is diversity and chaos on the outside, which is replaced with coherence and peace on the inside. Furthermore, Kim (2015) argued that the idea of inside and outside may be articulated in relative terms. For example, every shelter has an inside that is determined by its interface with its outside environment. According to this point of view, the layered structure and relativity of each inside may be true for each outside. As a result, there will be countless "in-between" layers.

Luz (2006) addressed the term in-between as a state of liminality and borderline in cultural-social studies and as a concept that is frequently used in numerous works of visual art, giving title to emotional and ambiguous meanings and thus surpassing the rationality embedded in its original mathematical and scientific forms. Following this broad interpretation of the phrase, Azhar and Gjerde (2016) stated in urbanism that in-between spaces denote a place at the center of two events or separate locations. For example, between inside and outside, here and there, this and that (sides). While in-between areas are frequently regarded as only connecting two extreme ends, the logic of duality or binary systems may also be blurred to acknowledge the physical presence of in-between spaces. According to Can and Heath (2016), understanding in-between space interactions requires considering the city's socio-spatial structure, which is one of the aspects of building a feeling of community.

On the architectural scale, Barrie (2013) and Barrie et al. (2018) raised the subject of the sacred in-between, which addressed architecture's mediating duties. Shahlaei and Mohajeri (2015), discussed the dialectic of the in-between on the inside and the outside. According to Krstić, Trentin, and Jovanović (2016), the concept of the intermediate layer between

inside and outside provides themes such as richness of space, diversity, complexity, and a distinct impression of dwelling space. Brookes (2012) responds to the issue, "How might design overcome the conventional difference between inside and outside?" by analyzing the relationship between inside and outside space, with an emphasis on the boundary condition. He researched kinetic, interactive, and dynamic architecture, which he subsequently implemented in response to the established interior-exterior relationship. Aim for a design that allows users to connect with the building and helps to adapt the space around it to match the activities and behaviors of the people who live there while maintaining a comfortable atmosphere. The spatial boundaries are blurred with the purpose of living with the surrounding environment, requiring one to perceive and develop a simultaneous interaction in which one may engage and co-exist between the two realms. This will be enhanced by integrating the structure into the landscape, which will allow the architecture to interact with its surroundings.

Koch (2013) discusses the public and private areas of human beings, which is very important in contemplating the issue: architecture is the confrontation of the private and public areas with each other, which has its differences for the residents and the audience, and the idea of being a mirror inside for the outside or vice versa. As a result, privacy is the primary and crucial concept in determining the link between inside and outside. Cattaneo and Cutruoneo (2016) expanded on Le Corbusier's idea of mass and empty space, arguing that "the outside is always as the inside" as it relates to urban design. On the scope of urban spaces, Gehl and Gemzøe (2004) analyzed the gaps between inside and outside and concluded that such transitional spaces have now been reduced to a bare minimum. According to Erkartal and Uzunkaya (2019), transparency is a component that establishes the interaction between inside and outside areas, determines the presence of public space, and permits buildings to be public spaces except for those that require privacy at a higher level, such as a dwelling. Grietena (2015) argued that in the previous two centuries, contemporary architecture and new materials, particularly glass, have transformed the interaction between inside and outside. This has increased internal and exterior alignment and harmony, as well as internal-external order, in their respective sectors. Depending on a variety of factors, glass transparency may be a good deterrent or supplier to the link between the inside and outside of the building.

Perceptions include comfort, aesthetics, accessibility, social, cultural, practical, and visual

concerns about the relationship between inside and outside in diverse nature and size. To further understand the meaning of perception in this study, let us examine Venturi's (1966, 1986) perspective on the role of the wall as a symbolic element of separation or connection between inside and outside:

"Since the inside is different from outside, the wall-the point of change- becomes an architectural event. Architecture occurs at the meeting of interior and exterior forces of use and space".

According to Thiis-Evensen (1989), the basic purpose of a wall in architecture is to delimit space and support the roof. He continues, "Supporting a roof is a structural concern", yet delimitation may be seen not just in landscape shapes but also in human social behavior. The wall forms territories in both circumstances, dividing two places with distinct contents. The constructed wall depicts the real method in which two disparate locations collide, interpreting the strong relationship between them. Taking note of our primary question, the architectural inside-outside relationship, this refers to the amount to which the wall drags external space inside or interior space outside. He analyzes the physical reality of the existential battle between an "attacking" external and a "secure" inner, gaining expressive significance. According to this, there are hierarchies for the perception of the relationship between inside and outside. At the residential level, George (2009) analyzed indoor-outdoor connections in three separate sections: 1) diverse theoretical benefits of the relationship, 2) historical treatment of the indoor-outdoor relationship, and 3) investigation of the tools and strategies utilized to build the relationship. His results in the third segment highlighted the following issues: focus, repetition, confinement, mobility, and connections (George, 2009). Due to the goal of this study, accessibility is important at the first level, and consideration of social perception is noted at the second level. On the perception of accessibility, the spatial sequence approach from outside to inside is seen, which is also connected to comfort conditions. As Al-Thahab (2016) noted, privacy and social life are significant elements in developing social solidarity, stability, and interdependence among families both inside and outside the house. The present study is interested in the social perception dimension on the two scales of dwelling and neighborhood unit. We can refer to socio-cultural perception as the combination of social and cultural values.

The focus here is on the house, which is the most rudimentary manner of experiencing the experience of inside and outside. Merriam-webster (2022) definition of "housing" includes three entries: 1) shelter,

lodging/dwellings provided for people, 2) a niche for a sculpture/the space taken out of a structural member, and 3) something that covers or protects, such as a case or enclosure, or a support (such as a frame). According to these entries, housing is a dwelling for humans, and it is expected to protect and support human life both physically and psychologically. In this definition, attention to the inside and outside relationship is implied. Housing is very important and the crucial function of inward reference is particularly important in the idea of habitation, as Arnheim et al. (1966) cited Bachelard: "The interior of the home is the carrier of poetry that can only begin from the interior of the house, which is an example of a full, even primitive, whole". The ratio of inside to outside in the dwelling type is seen differently from person to person while they have something in common. For example, Adolf Loos believed that the home should be calm on the front while displaying all of its richness on the inside (Janson & Tigges, 2014). Venturi (1966) cited Louis Khan: "A building is a harboring thing" and stated, according to it, the ancient duty of the home is to protect and give seclusion, both psychologically and physically. Also, if the house, as Rapoport (1972) defined it, is a carrier of the plurality of human wants, it must be understood. According to Marcus (2006), the relationship of a house to human civilization is also a sign of the self. As a result, many manifestations of the self may be identified from inside to outside the house.

Several studies addressed socio-cultural factors that affect dwelling: family structure and number of members, safety, privacy, and religion are outlined by Folaranmi (2010). And modesty as a cultural value was noticed by Mortada (2003). The current study relates to the components that specialists examine for cultural values so that aspects relevant to the situation might be added to this total in case studies. It is critical to understand the definitions of the three words "house", "home", and "dwelling" (Barrie (2017); Shidfar (2013); Karjalainen (1993)). The house refers to one's place of living, whereas the home is associated with emotional attachments and continuity via the existence and possibility of memories and experiences. According to Rajendran, Molki, Mahdizadeh, and Mehan (2021), "house", "home", and "dwelling" are interconnected notions that vary in connection to individual and community values, beliefs, and behaviors.

The façade is seen as a medium for linking inside and outside in extroverted houses (Jurgenhake, 2006). Many houses have windows that open to the outside world and doors that open to the inside world (Vogler & Jørgensen, 2004), but some kinds of houses have windows and doors that do not open to the outside. van

den Heuvel (2008) characterized windows and doors as providing a perspective of the outside world, transforming the known into the unknown and, to borrow Heidegger's words, transforming the ground into the sky. Through the rhythm and size of the crosspieces, van Nes (2008) identified the Amsterdam windows as differing from the Oslo windows in conveying a certain interaction between inside and outside. In creating the notion of openings, open areas such as yards and roofs are significant relating to the relationship between inside and outside. According to Hatipoğlu and Mohammad (2021), courtyard housing has a long history of creating hybrid spaces that operate as a transition zone between the city's public spaces and the interiors of the dwellings. Furthermore, this type of home has supplied contentment with a convenient inside-outside relationship, the success of which varies. According to Rajendran et al. (2021), the inside-outside connection in Iranian traditional houses, courtyards, and roofs is related to the people's demand for seclusion. In investigating the inside-outside relationship in a dwelling, the concept of privacy that is linked to eye contact in rooms for keeping valuable possessions such as kitchens or porches to make a transition from the inside to the outside, is a cultural story that is described by the language of space (Ly, 2012).

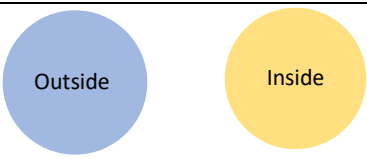
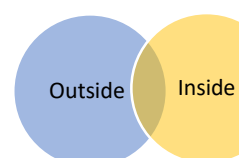

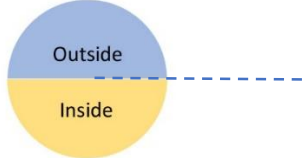

Some notions, particularly in domestic architecture, are founded on "in-between". According to Heidegger, van den Heuvel (2008) argued that inside and outside are simultaneously divided and brought together, and the outside is brought together. The external has been interiorized and domesticated, while the other has been appropriated. This is where the self-mirrors itself in the other world, tests itself against it, and calculates its own worth (van den Heuvel, 2008). Another major difference between Japanese and Euro-American dwellings is "inside out" (Daniels, 2008). This type of in-between layer is based on the recognition of concepts like "private", "public", "individual", and "society". Another example is "outside inside" or "indoor outdoor", based on Baghaei (2019), as a character and notion in open areas known as courtyards of traditional Persian houses in hot-dry conditions. Some natural features, such as the sun, the sky, trees, wind, and so on, are transported inside in his perspective. It may be true, but the social component of being outside or in public must be reconsidered. Relations in architectural spaces created various chains of place-passage-junction-place in traditional Thai dwellings (Suvanajata, 2001). However, owing to certain factors, passages or junctions as in-between places may be deemed to contain "lost space", "public space", "transitional

space", "planned space", and "the feeling of mobility" (Foley, 2012).

Based on the context, several conceptual models for the relationship between inside and outside in home architecture might exist. Table 1 depicts some of the most notable symptoms via five models: 1) Model 1: Inside and outside are divided and have contrast, representing duality; 2) Model 2: There is

something that connects the inside and outside. This way of viewing gives rise to the concept of "in-between"; 3) Model 3: Inside and outside collaborate to form a whole. They are already involved and ready for a reverse; 4) Model 4: The inside and outside are mirrors of each other; 5) Model 5: Outside and inside coexist, and key traits include the significance of being inside.

Table 1. Types of Conceptual Models based on the Literature Review on the Ratio of the Inside to the Outside in Dwellings

Type	Description	The conceptual models	Experts
Model 1	Inside and outside have contrast and are separated. They represent duality.		(1996) Venturi - (1996) .Arnheim et al -
Model 2	Something connects the inside and outside. This viewpoint gives rise to the "in-between" idea.		(1983) Schulz-Norberg- (2003) Skinner - (2004) Gehl and Gemzoe - (2008) van den Heuvel - (2009) George - (2012) Brookes - (2012) Foley - (2014) Janson and Tigges - (2015) Kim - (2015) Shahlaei & Mohajeri - (2016) Gjerde - (2016) Can and Heath - (1989) Evensen-Thiis -
Model 3	outside work Inside and together to create a whole. They are already engaged .and prepared for reversal		-Bachelard (1994) - Norberg-Schulz (2000) - Daniels (2008) - Ly (2012) - Grietena (2015)
Model 4	The inside and outside .reflect each other		Le Corbusier's view by Cattaneo and Cutruneo ()2016 (2006) Jurgenhake - (2008) van den Heuvel - (2013) Koch - (2015) Grietena - (2019) Erkartal and Uzunkaya -
Model 5	Outside and inside coexist, and crucial features include .being inside is essential		(1996) .Bachelard view by Arnheim et al - (1974) Schulz-Norberg - (1976) Relph - (2008) Seamon and Sowers - (2014) Loos's perspective by Tigges - (2018, 2013)Barrie - (2016) .Krstic et al - (2021) Hatifoglu and Mohammad - (2021) .Rajendran et al -

The logic of the correspondence between the experts and the models developed in Table 1 is as follows: either the experts have explicitly stated their statement about the relationship between inside and outside in their writings, or such a model can be interpreted and extracted based on the evidence in their texts. Some experts may have multiple points of view, causing them to appear in multiple rows of the table. It is not contradictory since they strengthen their manifestations when referred to in different texts, across time, or in different building kinds, particularly residential ones. Based on the literature review, five conceptual models are shown in Table 1. As shown in the table, the frequency with which experts make such assertions vary, and it is required to present these models in the field study to experts familiar with the homes investigated in Yazd in order to obtain the final results and appropriate analyses.

For various reasons, the ratio of inside to outside in modern housing in Iran, particularly flats, is not apparent enough. For example, at many doors, windows, yards, roofs, rooms, and other areas of flats, the impression of an inside-outside relationship is hampered by a gap. Yazd flats are no exception to this norm. Because of this issue, even if today's lifestyle is different from the past, it appears that if we comprehend this meaning by referring to the ratio of inside and outside in the background of a home in Yazd, we may approach a conceptual model to approach responsive design. Some of these goals can be adapted to other cultural disciplines in other Iranian cities similar to Yazd. Other findings might be applicable in Iran as an integrated cultural-national framework. Furthermore, emphasizing the inside-outside ratio in housing might give criteria for architectural critique in modern dwellings. Some studies have a comparable viewpoint to this article, emphasizing the social-cultural components of traditional home roles in modern housing design. For example, Alatta and Alamat (2017) argued that historic references in architecture may be used as a philosophy for activating cultural values and inherited social aspects.

The topic has been discussed previously, but generally in architecture and not specifically for traditional Yazd dwellings. This study seeks to present a different degree of description and analytical depth based on the historic background of Yazd houses as one of the strong roots for extracting the optimal ratio that does not expire through time.

2. MATERIALS AND METHODS

In the field investigation, 39 houses from the historic district of Yazd, Iran, were selected. Figure 1 (a, b, and c) depicts several examples of cases and significant locations in Yazd's historic district in the neighborhood of the cases. The majority of the cases were chosen based on the authors' extensive experience over the years. Because different portions of the houses may be associated with earlier or later different eras, the periods are not restricted to a strict one, and the periods from late Safavid to Zandieh, as well as the end of Qajar, are taken into account. The cases are drawn from the most frequent small, medium, and large house species. Preference was given depending on current residency or contact with their elderly neighbors. The capacity to view the records of the residences was another factor that affected the decisions. This relates to 28 Muslim cases: three houses in Ali Shirazi's "darband" (Tajer Shirazi, Shafeepour, and Mortaz), two houses in Malek darband (Malek-o-Tojjar, Malek), two houses in Arab-ha darband (Fateh and Farhangi), Gorji's house in Gorji darband, Rasoulian and Kasmaee in a common neighborhood, Mavaddat, Lari-ha, Golshan, Ardakanian, Oloumi, Owlia, Akhavan Sigari, Baran, Kouroghli, Pourabrishami, Moshir (Tajammolian), Shahrbanoo Golabgir, Zargar Yazdi, Semsar, Moshirolmamalek, Kolahdoozha, Hashem khan, and Hobab. The following 11 cases are from Zoroastrians: Four houses in Ardeshir Rostami Darband, Goshtasb Pour, Farrokh Ourmazdi, Beman Behmardi, Manouchehr Eivarmgah, Kasra Vafadari, Gharibshahi, and Shahriari houses.

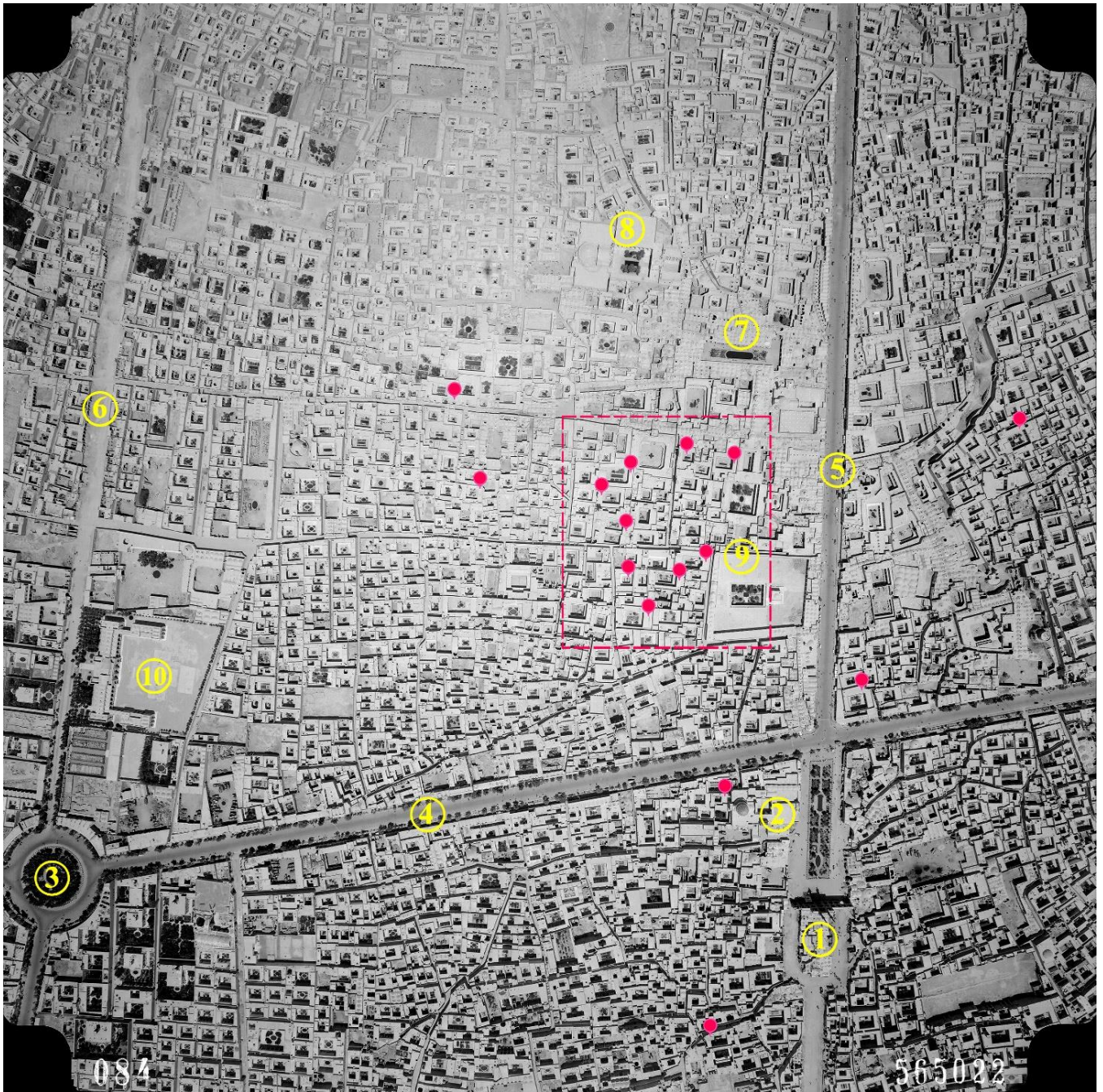
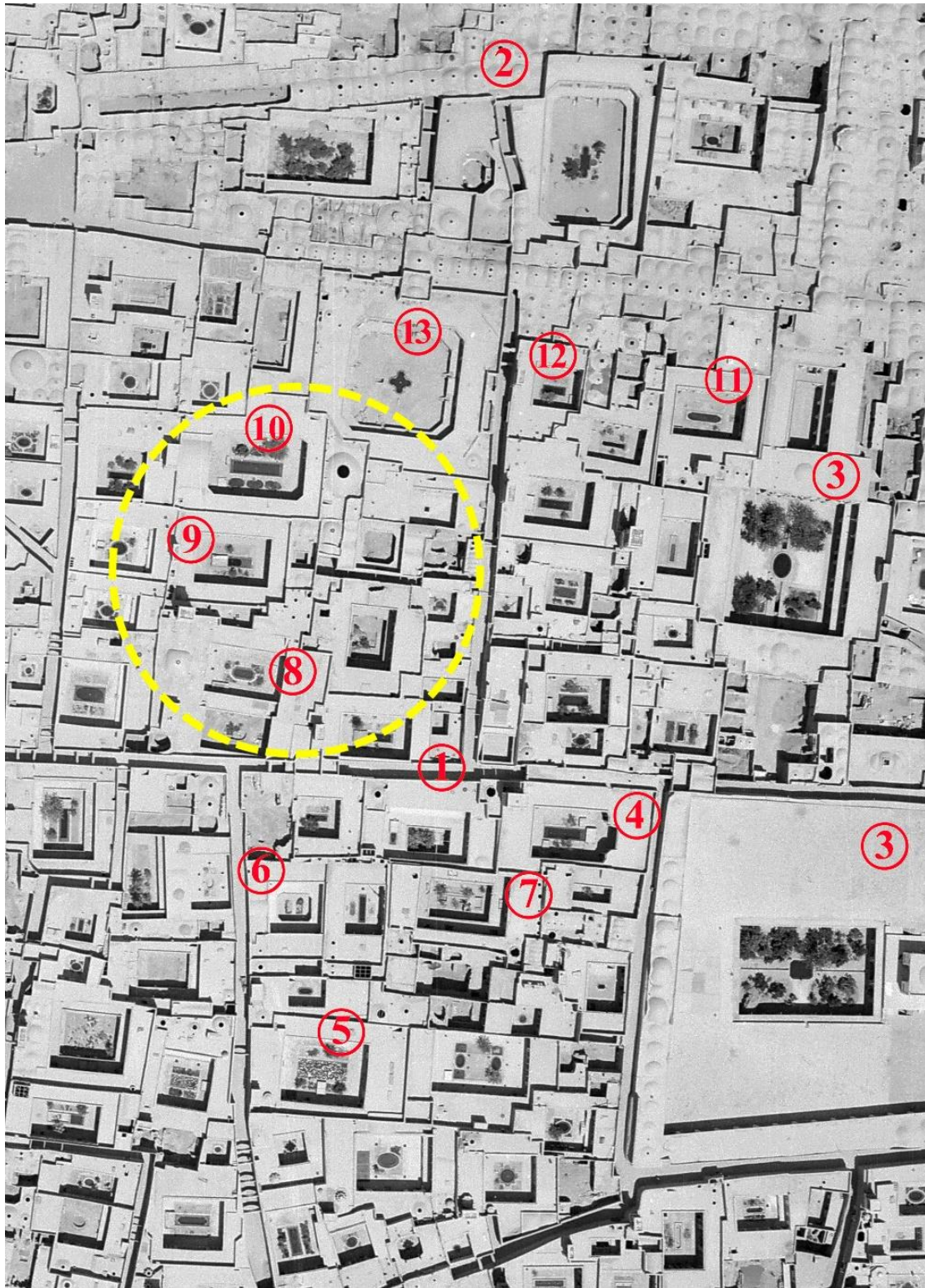
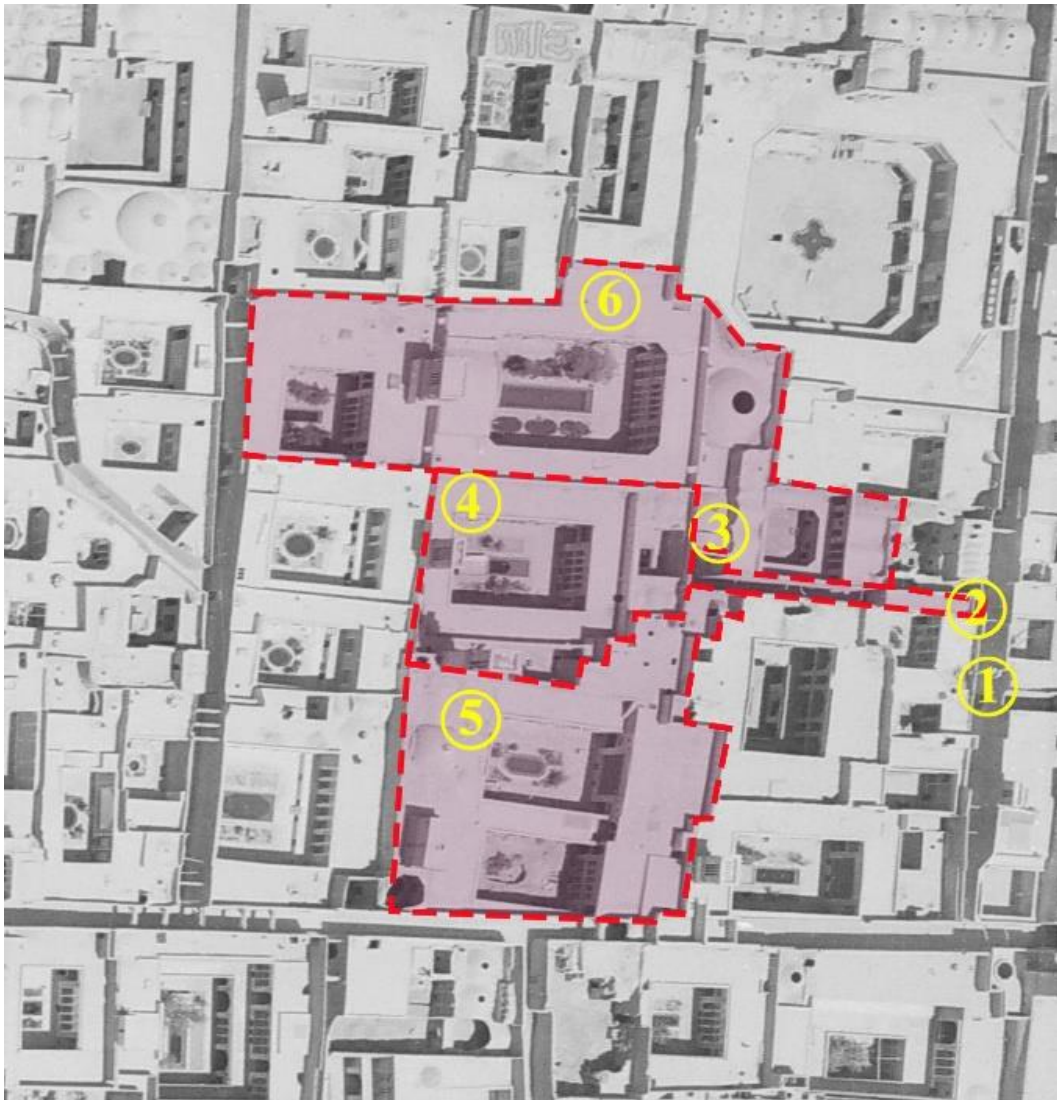


Fig 1. a) 15 case study samples are shown in red circles on a section of a 1956 aerial photo of Yazd. The following shot (b) will be a zoomed-in version of the map's dashed square. The following names are used to introduce the numerical positions in the image: 1) The "Mirchakhmaq" Complex and its plaza, 2) The "Mirchakhmaq" Mosque, 3) Shahid Beheshti Square, 4) Imam Street, 5) Qiam Street, 6) Shahid Rajae Street, 7) Khan Square, 8) The "Mosalla" Mosque, and 9) The Islamic religious school.



b) Enlarging the photo's dashed square (a). The case studies numbers 8 through 10 are represented by a group of three houses in the dashed circle in photo c. The names and sites are numbered in this manner: 1) Golchinan Alley, 2) Bazaar, 3) Religious Islamic school, 4) Mavaddat House, 5) Rasoulia House, 6) Kasmaee House, 7) Lari-ha House, 8) Shafeepour House, 9) Tajer Shirazi House, 10) Mortaz House, 11) Malek-o-Tojjar House, 12) Malek House, and 13) Ali agha Shirazi's Caravanserai.



c) In photo (b), a cluster of three family houses has been signed in a dashed circle: No.4 is Tajer Shirazi house, who was the father of the landlords of the other two houses, Shafeepour and Mortaz. No. 2 is placed at the beginning of the alley (darband), which connects the cluster houses' private alley and entry semi-private arena (no. 3) with the main passage on the one hand, and gives a controlled range to reach the family neighborhood unit on the other. No. 1 is a continuation of the 'Golchinan' path.

Three steps were taken in the methodology. Some perceptual meters are concerned with the presence of authors in the case studies, using a historic interpretative approach to identify some of the cognitions, actions, and behaviors of the family in the past. Evidence such as furnishings and old photographs was also useful. Another source for this

stage was getting comments from inhabitants, particularly elderly residents, on their lived experiences in these residences. Semi-structured interviews were used to interview the inhabitants (5 women and 6 men). The participants were asked various open-ended questions throughout the interviews (Table 2).

Table 2. The key questions asked in semi-structured interviews

The Questions	
1	How long have you lived in the house? How many yards are in your house? How many entrances does it have?
2	Which parts of your house are inside and which spaces are outside? What activities do you do in them?
3	Where is the most private and public place in your home?
4	From entering the house to reaching your destination, is there continuity in the hierarchy of getting closer to the house or is there some kind of pause in some places? Please explain their locations and the behaviors that may cause them to pause.
5	Compare living in this house with living in another house. Which do you prefer in terms of the relationship between inside and outside? Why?
6	Do you feel safe in your home? Where is more and where is less?
7	Outside the house, from what time or place; Do you have a sense of closeness to your home? Is it possible to get news from outside your house?
8	Where at home does the concept of "being at home" come to you more deeply?

The quotations have been compiled, and certain codes pertaining to the study topic have been highlighted in bold. Several interfering factors were discovered during open coding by the authors. For instance, Muslim or Zoroastrian landlord, years of residence, house size, perception time (night or day/season, etc.), age, and gender. The number of entrances, the number of dimples, and the heights of the dwellings all influence how much of the structure sinks into or away from the ground. The slope of the land, neighborhood relations, the landlord's financial capabilities, the historic period, the level of health and upkeep of the dwellings, and the prospect of sustaining the traditional lifestyle via them should all be considered. Following open coding, axial coding was used to describe the participants' perceptions and cognitions of their houses' inside-outside relationships. Observing the participants' tacit judgment and the behaviors related to them as a result of the inside-outside ratio served as markers in the axial coding.

The authors shot the occurrences discovered on the route from the exterior to the interior of the residences in the second step. As a consequence of the authors' frequent visits to the majority of the analyzed houses, many and varied frames of the experiences of entering or departing the houses were remembered and reviewed in their minds. At this stage, we attempted to record the identified frames using the camera. These frames will be used as data sources for the photographic survey, with the abbreviations "E1" to "En" instead of "Episode 1 to Episode n" ordered in the result table. The endeavor in selecting the episodes has been to choose identifiable episodes and relative spacing in the route. Choosing similar episodes adjacent has been avoided. The hierarchy of approach to the houses in each case example has started from the boundaries in the neighborhood and the passage that informed or signed approaching the house and

continues until reaching the destination and settling in the house under the title of being at home. The selection of the episodes was influenced by a number of factors. For example, a change in smell (such as flowers and food, etc.), a change in sound (such as the commotion of the street or the hum of sparrows in the house or the sound of a water fountain), a change in light (dark and bright), and a change in enclosure (wideness and narrowness) were effective in diagnosing. It should be noted that drawn documentation of the houses was referred to in addition to being in the houses and paying attention to the perceived frames in an experimental method. Two illustrations of documents that have been utilized are shown in Figure 2. The sensitivity and identification of the diversions and changes in the plans and sections in the spaces also resulted from attention to the documents of the homes. It also assisted in selecting significant and useful frames from among the numerous frames. There are several events on the way that are not confined to one house but are frequent in the family neighborhood for two, three, or four houses as a family cluster. The main entrance was the foundation for the investigation of houses with several entries. Sequences were named from "S1" to "Sn" and were a set of episodes with a related finale. The following factors that influenced the criteria for identifying sequences and interpreting photographs are in this way: The possibility of family members or others being present in the episodes, the occurrence of joint activities with neighbors or even strangers, or the occurrence of entirely family activities in them, open and closed or half-open spaces, interior or exterior space, the presence or absence of doors or thresholds, individual or social spaces, dimensions and size of space, the presence of nature, lightness or darkness of spaces, change or non-change of pathways, and so on.

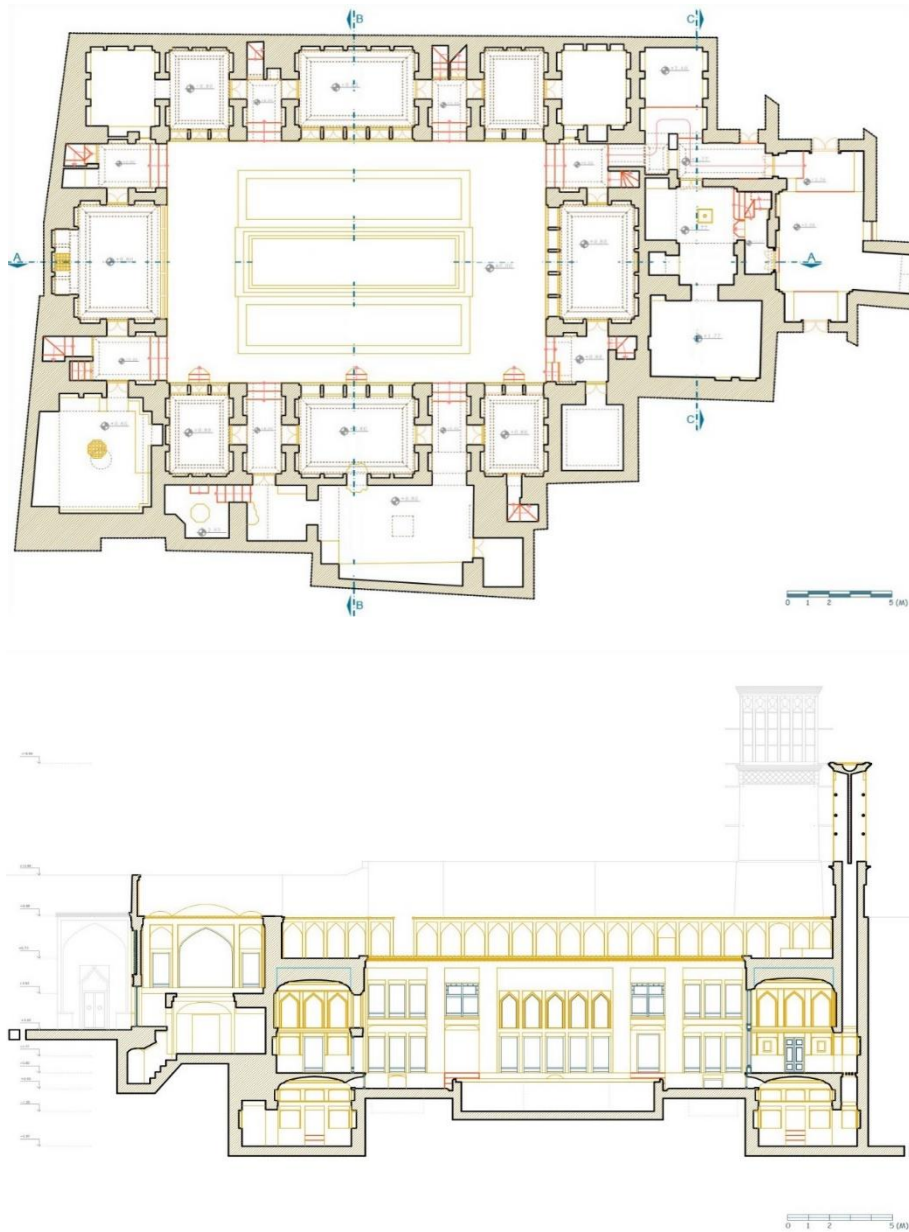
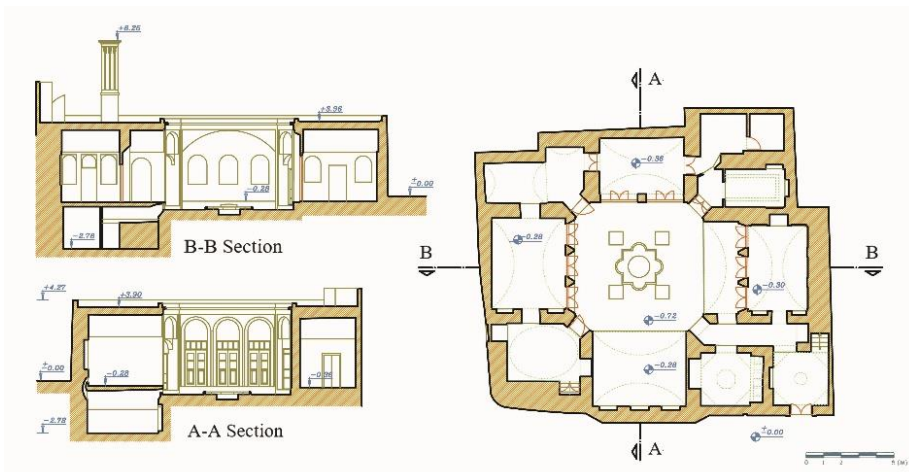


Fig 2. a) Illustrated documents of Tajer Shirazi house: Ground plan and A-A section



b) Illustrated documents of Majid Pourabrishami house: Ground plan and two sections

In the third step, in-depth interviews with 18 experts who had lived in similar dwellings were conducted. They are professors in architecture or urban planning programs at Iranian universities. Eighty percent of them are Yazd natives. The five conceptual models were shown to the interviewers during the in-depth session, and two questions were asked: What is your lived experience regarding the relationship between inside and outside in houses in Yazd from the Safavid to the Qajar periods? Which model, in your opinion, can describe the house's inside-outside relationship? (In response, select one to five conceptual models or create a new conceptual model). The outputs of these three processes are supposed to be at various levels, such as the participants' perception, cognition, assessment, and behavior with respect to the inside-outside ratio. This content is useful in approaching various indications to analyze the case study. Concerning the observation of the consequences in case studies, Whitley (2018) stated that an architectural narrative may be achieved through the spatial sequencing of "space", "event", and "movement" that are based on time, place, and behavioral subject. Therefore, the link between this triangle has been followed. During this process, events may be identified and highlighted, and there are turning points by linking their chains to each other at a given time and location. They arrive at the last turning point, and the narrative concludes. This assertion was noticed in all three steps of the research methodology.

3. RESULTS

According to the statements in Table 3, the first step findings suggest that there were family links in the cluster neighborhood's entrance path since most of the instances had a shared closure in the neighborhood unit with relatives. As a result, the outside of houses is still described as the social gathering areas of the inhabitants. Since some of the words used by the participants to name and describe their living spaces are specific to the context of Yazd, henceforth their original words will be used in English letters inside the quotation and their meaning will be mentioned in the endnote. The entryway, door, "Hashti¹", or "Keryas²", and "Dallan³" played a crucial role in dividing the interior and outside of the family domain from the

neighbors. This trait is the same in medium and large houses. According to interviewees, all of the interior courtyards were private places for family members, and many of the participants preferred to stay in these courtyards or three or five-door rooms adjacent to these courtyards as a situation they perceived as "being at home". One of the traits shown by the audiences in the courtyards is their opportunity to see the sky, which gives them an impression from outside in. The four sides of each courtyard are only accessible to the occupants of each house, and no one outside can view the inside facades. The guests also took advantage of the exterior courtyards. Small houses with a single courtyard have an entry portion as well as a corridor leading to the courtyard. Because they were small, they demonstrated the landlord's limited financial ability to host strange guests, and therefore the interior zone for them begins after the door. In medium and large homes, the vestibule was an "in-and-out" or "closed-and-opened" section where occupants and guests could be separated. In these situations, security was provided by locking the doors at night, while during the day, the conversation between neighbors prompted the doors to close less frequently. However, current inhabitants of the residence claim that the door is always locked and only opens during rituals. Zoroastrians, for example, in "Gahanbar"⁴ ceremonies, or Muslims in religious ceremonies or weddings, will leave the door open. In this way, the outside is occasionally allowed in with the landlord's consent. The factors that cause the community to recognize being close to a certain house are neighborhood signals, such as noticing the towering cypress of houses in the alley skyline or features of the roofs.

¹ Hashti is the space behind the sar-dar (doorway). Most traditional houses in Yazd have hashti.

² Keryas is a space after the door as an adaptor to enter some traditional houses.

³ A corridor following Hashti or Keryas

⁴ Gahanbar, any of six Zoroastrian festivals held at irregular intervals throughout the year to commemorate the seasons and possibly the six stages in the creation of the world (the heavens, water, earth, vegetable world, animal world, and man).

Table 3. Some examples of the data obtained in step 1: The codes are bold, while the quotations are italicized














	<p>The participants' quotes</p>
	<p>Man, 76 years old, Zoroastrian, residence time: from birth until now</p>
<p>1</p>	<p>Our home has three courtyards and two entrances. One of the entrances is in Darband, shared with three other neighbors who are my brothers and sisters, and one is in another alley. It has an interior and an exterior: the rooms around the central courtyard are called the interior, and the four-story courtyard is called the exterior. The main spaces of our house are the rooms around the central courtyard to receive guests. The yard and kitchen are for commuting and cooking. Bedrooms are the most private in the guest house, and storage is the most public place in our house. These houses belong to their time, and now, not everyone is used to having connectedness to them. From entering the house to reaching the destination in the house, we move through many mazes and reach the courtyards and surrounding rooms. Each has its own characteristics. For example, the corridor, which is the crossing point, plays a big role in this path. I feel safe everywhere in the house. You cannot hear it from the outside because it is made in the old style and cannot be guessed inside. Everywhere in the house, the concept of "being at home" is deeply understood by me because each space has a unique character. The door to our house is always closed for security, unless at the time of the ceremony.</p>
	<p>Woman, 31 years old, Zoroastrian, residence time: 2 recent years</p>
<p>2</p>	<p>Our house has two courtyards and an entrance and consists of two parts, the central courtyard for living as the interior of the house and four "soffeh" for prayers and ceremonies as the exterior of the house. The main space of our house is a three-door room in the central courtyard, which is used for daily activities, and in the outer courtyard of the long plateau (Pescam Mess) for religious activities. The most private part of our house is the 3-door room (central courtyard), and the most public part of it is the porch and the entrance corridor. After the entrance door, "hashti" is in the path. After that, we enter a corridor, and then we enter the central courtyard. The living spaces of the house are located on the four sides of the yard. From the yard, we can reach the house from each of the spaces. After a few steps, we reach a corridor, and then we enter the desired space. These corridors exist between each space of the house. I prefer living in this house to the houses I have been to because in this area there is a hierarchy to reach the main space of the house, we do not enter at once, and the privacy and security of the house are maintained. I feel safe at home, but security has decreased due to the lack of dwellings in the neighborhood. There is more security inside the 3-door room, and less security inside the entrance hashti. I can feel the approach of the house when the entrance door is opened, and the platform at the door can be seen from inside the alley. Except for the high walls of the house and the entrance, there are no outside signs of the house in the alley. In the central courtyard and the 3-door room, the concept of "being at home" occurs to me. The door of our house is open at the time of religious services and closed in other situations.</p>
	<p>Man, 34 years old, Muslim, residence time: about the last 3 years</p>
<p>3</p>	<p>Our home has a yard and an entrance. Its most private space is parts of the basement, and its most public parts are the corridor and courtyard. From entering the house, the roof decorations of the porch and the stone flooring of the porch with the platforms inside the porch cause a pause before reaching the inside of the house. Due to the introversion of the house in comparison with new houses, I prefer to live in traditional houses. I feel safe in my home. A great sense of security occurs when we are in the "Talar" of the house. By sitting in the "Talar", the concept of being at home was understood to me deeply. Except for the entrance door, the only connection point between inside and outside the house is the small opening overlooking the alley, which allows a view from the roof into the alley.</p>
	<p>Woman, 64 years old, Muslim, residence time: about 2 years in the past</p>
<p>4</p>	<p>The home that had two courtyards and an entrance belonged to my father-in-law and mother-in-law. I felt at home since I opened the door with the key. Before entering the house, there was a "darband," and usually the neighbors were relatives in the "darband," and it caused communication before entering the house. In the entrance corridor, neighbors came, and we had a room in the entrance hall where ten-minute guests were received. After crossing that corridor, you would reach the yard with a turn in the path, which was the main zone of the house, and at that time, you were definitely inside the house. The feeling of security in the house was very strong because the walls were very high. The closer you got to the center of the house, which was the yard, the more secure you felt. The rooftops were also inside the house, and we felt safe in them. The door was usually open and locked at night. People need to have ideas to make a difference inside and outside the home. Today's houses have no interiors, and we are not allowed to disturb neighbors with noise, for example, by singing or circling.</p>
	<p>Woman, 73 years old, Muslim, residence time: about 10 years in the childhood</p>
<p>5</p>	<p>Our home had a shared enclosure (called a "darband") with my grandparents' home. Our darband had a door, and from the outside, when strangers passed by, they did not know that after the door, there were four more doors for four houses. At night, this closure was completely private and safe between neighbors who were relatives. The hashti and corridors of each house made it impossible for anyone to see the courtyards of the houses. In my opinion, the yard was the most private and inner part of the house, and the turns in the corridor separated the inside and outside of the house. During the day, when the entrance doors were open, strangers who might come to our house would sit on the porches to get permission. In our hashti, there were two paths to go to: the inner courtyard and the outer courtyard. The roof was private, and we slept there. From the entrance or the elements that protruded from the roof, we could tell that we were close to home. In addition, there were some pieces of evidence before entering Darband, including the neighborhood laundry, where the water flowed by, and we realized that we were close to home.</p>

In the second step, a series of acquired frames were produced and classified depending on the episodes. As an example, Table 4 (a, and b) displays the results of this process in two circumstances. The primary pattern was followed from outside to inside: Spatial progression from the semi-private entry in "darband¹", "Sabat²", "Jolo-Khan³", "Pirnshin⁴", entrance door, "hashti", selective access to the roof, outer courtyard, inner courtyard, or service courtyard, and ultimately, access to the apartments and "pastoo⁵". Some components of the above structure are omitted in small houses, while in extremely large houses, a lot of intermediates are introduced. As a result, the pattern varies solely in the depth or breadth of the inward closeness layers. A spatial sequence was followed via

the hallways and entrances to the courtyard(s) and rooms in each of the interior or external zones. In some situations, the sequences are four, five, six, or even more layers from outside to inside, but in all of them, at least four layers sufficed. The lone exception was in a Zoroastrian house, where the minimum sequences were decreased to three levels. The progressive perception of the layers got more nuanced and the sensitivity of their recognition rose if more than four perceptual layers were put in the sequence of behaviors, and if four perceptual layers were placed, a bigger gradation was formed for the recognition of the layers. As a result, the integrity and spatial sequences examined from the hierarchy of closeness from outside to inside the houses formed a chain-like path.

Table 4. Two examples of step 2: Episodes and spatial sequences of the cases: a) Tajer Shirazi House, and b) Majid Pourabrishami house. Beginning with neighborhood boundaries and entrances that indicated or signaled approaching a house, the hierarchy of approaches to houses proceeded until reaching the destinations and settling in the houses under the label of being at home.

a)

S ₁ : Outside out				
E ₀	E ₁	E ₂	E ₃	E ₄
				
E ₅	E ₆	E ₇		
				
S ₂ : Inside out				
E ₈	E ₉	E ₁₀	E ₁₁	E ₁₂
				

¹ A traditional vaulted alley and its adjoining mudbrick houses are collectively named a "darband" in the Iranian vernacular architecture.

² One of the architectural elements in the alley that provides shade and serves a structural function between neighboring houses.

³ A part of semi-public open spaces at the end of Darband that is called "Jolokhan", which separates each house from accepting the

outside crowd to enter the house. This word is generally used for the front of mosques, but it can also be used for the front of the neighborhood units.

⁴ There is a stone bench at the home entrance and people use it to sit on. They are usually found in pairs.

⁵ A tiny room that is connected to larger rooms and is used for storage or afternoon sleep or worship.

E13



E14



E15



E16



S3: Outside in

E17



E18



E19



E20



E21

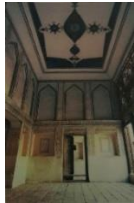


S4: Inside in

E22



E23



E24



E25



E26



E27



E28



E29



E30



E31



b)

S1: Outside out

E0



E1



S2: Inside out

E2



E3



E4





In the third step, based on the experts' perspectives on their lived experiences, some of which are narrated in Table 5, the experts' lived experiences dedicated to inside and outside grow from each other, such as private and public, outdoor and interior, open and closed, and solitude and congestion. There were instances when there were obvious physical limits, such as doors and walls. However, in theory, the sensory, and intellectual perception of residents and outsiders recognizes boundaries between minds that may not be physically obvious. Closures served as a screening and entrance criterion for the majority of houses. In this approach, the outside is defined by experts' lived experiences, signed on a unit-scale scope. The experts' reaction to the subject of selecting a model from among the conceptual models was as follows: Model 1 received 0%. Model 2 received 25%. Model 3 received 25%. Model 4 received 0%. Model 5 received 35%. And another model received 15%. Another model mentioned by experts was hazy rather than rigid to depict the ratio of inside to outside. The models may alter depending on the lifestyle and are not fixed.

4. DISCUSSION

The levels of companionship, intertwinement, and separation of inside and outside are studied in this study. As a result of the field research, there are a series of consecutive events with a beginning, an end, and a body that are influenced by social relationships with neighbors, strangers, family members, guests, and oneself with oneself that are significant in the relationship between inside and outside. The data demonstrates that the consequence is not limited to one field of perception. According to the study, at least two parallel perspectives exist: 1) in terms of the physical component relating to the "in-out" arrangement and

related to climatic conditions, comfort, safety, and physical security, and 2) in terms of non-physical aspects relating to social-cultural variables in family description, "privacy-public" norms, and psychological security. Investigating and evaluating events and behaviors of residents, in two sorts of perceptions, explains that they are consistent in the circumstances. In the periods analyzed, there is a convergence between the inside and outside of the houses in reacting to both physical and non-physical characteristics of perceptions in the participants' cognition and behavior.

Comparisons of conceptual models drawn from the data are contentious: Conceptual model 2 confirms and represents the greatest resemblance in terms of inside-outside ratio based on the triangulation of the findings of steps 1, 2, and 3. In the case of ceremonies and events, concept model 3 is also valid in the landlords' decision and approval. The ability to change these two models and their blurred borders depending on the circumstances demonstrates that there is some flexibility in this ratio. However, because a chain of linkages was retrieved in the stated spatial sequence, the layers are not totally separable. This outcome is consistent with the social fluidity defined by Al-Thahab (2016) as an inside-outside social transferable connection. He stated the interaction between the inside and outside of traditional Iraqi houses had an impact on the spatial structure of the house in terms of privacy. The fact that Model 1 was not chosen by the field study experts demonstrates this assertion. As a result of all of the prerequisites specified, conceptual model 5 is authorized, indicating that these two domains are not independent domains and are always connected to each other via regulators. Model 5 garnered the most votes from the experts polled. According to Table 1, based on assigning a model to each expert's remark, Model 2 is more in accordance with the viewpoints of theorists in

the discourse of environmental psychology, whereas Models 5 and 3 are dominated by phenomenologists. This conclusion is consistent with the fact that certain phenomenological discourse representatives stress the interior of the home in relation to the outside.

Based on both the literature review and the field study, it appears that we have 2 alternatives: 1) Model 2 with a linear character, and 2) Model 5 or 3 with a nonlinear nature. See Table 6 for further information, which includes two answers.

Table 5. The Expert's Quotes through Step 3 (the quotes are italicized, and the codes are bold)

rows	The experts' quotes
1	In the Yazdi spoken language, "had," which means "limit," is used instead of a yard . That itself indicates a kind of privacy for the yards and a type of border for inside and outside . There were several limits in the house, and one of them was for the private life of the family and was the innermost part of the house . Other limits were used for guests and crew. On the way to the houses, there was a public passage at first, but when you reached Darband , due to family or acquaintance of the Darband neighbors, there was no place where there was no supervision . "Hashti" was more internal than the enclosure , and after that, the entrance corridor was the family territory .
2	In most of the Zoroastrian houses I have seen, there are hierarchies and mazes of entrances to the houses with great qualities of semi-open spaces in their roofs , such as " hashti " or " kerias ". But there may be a few exceptions. Therefore, rarely does a person enter the house directly . For example, such exceptions may be seen in rural Zoroastrian homes with fewer formalities and hierarchies. " Sabat " up to the entrance is important for Zoroastrians and represents a threshold for entering the house. I feel close to the house when I see the seats on both sides of the entrance in the alley belonging to the house. Sometimes it is possible to see cypress inside the houses or windcatchers of the houses from the alley. Other than that, there are no outside signs of the house inside the alley.
3	The boundaries between inside and outside were not rigid . The landlords sometimes brought them in and out . For example, when children play or women sit in the neighborhood, there are manifestations of mediation activities between inside and outside in the space between inside and outside. For another example, at a wedding, by opening the door, strangers could attend the house to be present at the wedding. In Zoroastrian houses, in addition to the residents of the house, others are allowed to enter the outer courtyard during the " Gah-Anbar " ceremony.
4	Because of the climate of Yazd , there is a similarity in the relationship between inside and outside in the Zoroastrian and Muslim houses. My lived experience shows that life takes place somewhere between inside and outside . There is a kind of mediation between inside and outside in these houses. Sometimes it corresponded to the enclosed space and sometimes it corresponded to the open space . Sometimes the inside corresponded to the half-open and sometimes it corresponded to the half-closed . Boundaries were formed and moved according to the needs of the residents.

Table 6. The Final Conceptual Models Developed through Field Study and a Survey of the Literature

Answers	Detailed alternatives	conceptual modelsC
1	<p>Neighborhood Darband Entrance Courtyard(s) Talar Rooms</p>	A)
2		B)

These two approaches coexist in the residences under consideration. Models A and B, taken from alternatives 1 and 2, may be integrated with each other, and even though the procedure is not always linear, the result does not contradict Model 3 in Table 1. Indeed, in everyday life, the ratio of inside to outside is regarded as Model A or B, and in the context of hosting religious or social ceremonies in houses, Model 3 may also be identifiable for most areas in the houses. There is a significant overlap between models A and B in that there are at least four perceptual layers formed for houses, both in physical and non-physical features, from outside to inside: outside out, outside in, inside out, and inside in. This conclusion is consistent with the research on the inside-outside symbiosis in the "Naghsh-e Jahan" square, which revealed a balance between these two zones by crossing seven in-between levels while determining the proportional importance of the inside in each architecture (Mahboobi, Mokhtabad, Etesam, & Attarabbasi, 2018).

According to the study, two socio-human and physical dimensions are beneficial in comprehending the interaction between inside and outside in these cases. As Rapoport (1972) underlined, these dimensions have an infrastructure that is anchored in community culture. Places in the house discover public or private space for the audience via culture, and this returns to the expectations of the house residents from the private or public zone of their house. Shabani, Tahir, Shabankareh, Arjmandi, and Mazaheri (2011) argued about the relationship between cultural and social features in Iranian traditional houses that are sensitive to privacy, and they identified cultural limitations to generating privacy in households. The people who lived in the cases saw regions in a hierarchical manner. The body and bounds of the cases also support this viewpoint. The spatial sequence that went through the realm from outside to inside prepared variations in scale, lighting, and darkness; confinement and spaciousness, open and closed space, changes in the axis of movement and mazes, and so on. They were all accompanied by a progressive increase in the number of joints between inside and outside, which varied based on the home style in terms of size, the number of courtyards, and audience.

It was critical in the houses that everyone inside and outside could both perform their roles and be related to one another. Both semi-public and semi-private areas were beneficial in this respect. Essentially, in-between areas were quite powerful and played a critical role in making the connection materialize. Transition space, connection, and interface are the physical qualities of the spaces

between inside and outside. The space's characteristics include private, semi-private, public, and semi-public, making it suitable for individual family members, family gatherings, neighbors, guests, and others (strangers). The participants believe privacy is in the private zone of their houses, but public privacy of the family or contact with relatives and neighbors is observed. The distinction between public and semi-public dwelling areas means a set of characteristics. The existence of general or inside users in home spaces is a sign of non-physical parameters, but on physical parameters, the layer and boundaries for the living spaces are evidence. The indicators of semi-public and public spaces of the houses refer to three factors that were noticed before: "space", "event", and "movement" that are based on time, place, and behavioral subject.

The existence of multi-generational families in this sort of house confirms some features of the definition of the public to private spaces. Every small family has its own privacy, and living adjacent to the rest of the multi-generational family in these houses respects their privacy. These houses are adaptable in this regard. They have the capacity to both integrate and divide multigenerational households. It is also feasible to divide and receive guests with long or short stays, which drives the outside of this type of house to be examined in great detail, especially in large-scale species. They live together extremely far and very near, and the borders between them may be retractable with the approval and authority of the residents. Spongy areas and nested rooms with several doors that stay open or close train the body for precise or even hazy boundary adjustments. According to Al-Zubaidi (2007), traditional houses contain highly layered linkages between inside and outside that are built by social structure and behavior, and this trait can reveal traditional kinds and patterns in a process of continuity and change. The porch, similar to that defined by Gillette and Baweja (2021), despite different background of him in relation to Iran, served as a transitional area between architecture and landscape architecture, connecting inside and outside in case studies. This is in line with Ly (2012), who states that a verandah, porch, or sky-well serves as a buffer zone between the inside and outside of the house. Each of the transition areas appeared complete while remaining open-ended in order to have connections to the following episode and sequence.

Despite having differing worldviews, there was no substantial difference between Zoroastrian and Muslim houses. The shared culture of being Yazdi and Iranian has led to the acceptance of the value and normative criteria while maintaining ideological ideals behind them. The hot, dry climates had a great

influence on the unity of the current technique in terms of internal and exterior ratios in homes; in the summer, the outside represents intolerable heat, while the inside represents calm. In the winter, the outside represents cold while the interior represents warmth. The ecological component of the researched houses' creation was highly beneficial in confronting inside and outside. This characteristic is consistent with other traditional houses in hot, dry climates where thermal comfort within the houses must be achieved by situating and modifying open, closed, and semi-closed areas (Alzoubi & Almalkawi, 2019). The level of the yards played a role in deciding on the placement and height of the dwellings as a reaction to the requirement to keep water in the pond and access water for gardens. As a result, the houses are situated at the optimal depth for accessing the water level. In the Qajar period, the opposite end of this demand was to provide optimal air conditioning through windcatchers for the interior regions of such houses. Furthermore, windcatchers for traction and suction are installed on the height, resulting in an outside sign for each house. The balance of these demands established an optimal condition for the inside-outside ratio for such dwellings. Based on the ratio, even a significant element such as site size has no influence on the application of the aforementioned regulations. Of course, the landlord's financial constraints or his (her) employment have resulted in the decision to have several inputs. The length of the hierarchy of physical closeness from outside to inside, for example, changes from case to instance and gets more comprehensive or succinct. It has also resulted in an overall decision about the size, number, and quality of the house's inner and outer courtyards, as well as the nearby enclosed areas. The form of the land also has a significant influence on this.

5. CONCLUSIONS

The following are the findings of the paper after surveying the background in parallel with the authors' accurate observation and life experience, as well as interviews with both residents and experts. Analyzing the cases reveals that the occupants of these houses believed in cloudy realms both inside and outside their homes. The innovation of retaining the interior while connecting to the outside was vital, with the intermediary worlds of inside-outside as in-betweens. The novelty of being within while connecting to the outside was critical in the inside-outside transitional world. The flow of their existence emphasizes the importance of emotional presence in their homes as they gathered family members inside, the center of the house. The communication of neighbors and guests is

a concern during contact both inside and outside. In this way, a regularity in the inside-outside relationship with a characteristic that families and others should understand occurs. As a result, their dwellings have at least four perceptual layers, including both outside and inside: outside out; outside in; inside out; and inside in. The length of the hierarchy varies from case to case and becomes more thorough or concise. It has also led to a choice in the size, number, and quality of the house's courtyard (s), as well as the neighboring enclosed spaces. These four layers made the sequences perceptible in which the episodes could be recognized. The episodes, as a subset of sequences, display the pattern of place components such as entry threshold, entrance doors, "hashti" or "kerias", corridors, courtyards (s), rooms, "pastoo", and so on.

Despite theological differences, there was no obvious difference in the inside-outside connection between Zoroastrian and Muslim houses. The spatial sequence and layers identified in the dwellings analyzed by Muslims and Zoroastrians are recognized and comparable. Yazd's common culture and environment have produced shared principles and conventions and common background in this relationship. The junction that connects the inner and exterior worlds created a flexible connection that resulted in the individuality and sociability of the houses. There is some flexibility in adjusting private, semi-public, and public boundaries, as well as manipulating cloudiness borders, to allow for different activities in houses due to spaces, events and movements based on time, place, and behavioral subject. In terms of the social-cultural component, this property has played a crucial part in housing responsibility. These features, when combined in a variety of sequences, direct the audience from the outside into the house, providing the residents with comfort, security, privacy, and the avoidance of clutter within the family. The ratio of inside to outside in the investigated houses demonstrates that the existence and presence of family life is a crucial requirement for the achievement of balance between inside and outside in the houses, which, of course, requires additional interdisciplinarity study in the future.

6. ACKNOWLEDGEMENTS

The experience would not have been possible without the accompanying participants, especially the residents of the case studies and architects who helped us in some of the interviews: F. Bagheri, N. Demehri, A. Farzaneh, S. Khademi, and M. Enayatollahi. We would also like to thank the 18 experts who participated in the study and gave us their valuable perspectives. The authors would also like to thank

Ms. V. Mehrab, A. Farzaneh, and M. Pakchashm for their help in providing accessibility to some of the case study documents.

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HOW TO CITE THIS ARTICLE

Pourmehdi Ghaem Maghami, H., Khaki Ghasr, A. (2022). The Inside-Outside Relationship of Traditional Houses: A Case Study from Yazd, Iran. *Int. J. Architect. Eng. Urban Plan*, 32(4): 1-22, <https://doi.org/10.22068/ijaup.727>

URL: <http://ijaup.iust.ac.ir>

