Abstract

Problem statement: A number of theories have been proposed about the relation between culture, lifestyle, architecture, and spatial structure. The ‘Closet-Space’ or ‘Sandogh-Khaneh’ is an example of this implication. It was considered as a side element in traditional Iranian houses that used to assist the architect in creating the spatial proportions in some cases, but actually, it had a functional role in creating the interior space in traditional Iranian houses.

Research objective: The purpose of this research study is to investigate the role and function of the ‘closet space’ and to address its location in traditional Iranian houses; A few Yazd traditional houses have been considered as a case study.

Research method: The research adopted the analytical-descriptive analysis. Following the collection of the data through the bibliographic method, and observations were carried in the field. In bibliographic studies, various resources such as books, prestigious journals, and architectural plans were used for gathering the required information.

Conclusion: The findings of the study showed that ‘closet space’ used to play a functional role in creating the privacy and interior space of traditional Iranian houses. A kind of space was allocated for recreation, prayer, meditation, or storage of various tools and equipment; A place next to the key spaces of the house or in a corner place of that space, where its function was also affected by the location.

Keywords: Privacy, Closet-Space, Iranian house, Function, Location.
views. Considering the philosophical, sociology, psychology, cultural, aesthetics, functional and other related issues are among these views (Ghaffari & Banaei Abrandabadi, 2011, 16). In this regard, culture, is one of the issues that can affect the architectural structure of a house; in a way that cultural differences will reflect in various structures; similarity, new spaces will be created in culture and along with cultural changes, the spaces lose their previous function and are gradually removed.

Adopting a special lifestyle and behavior pattern which is the outcome of human behavior and also the consequence of both individual and group interactions, will cause the social spaces to be formed (Ebrahimi, Soltanzadeh & Keramati, 2017, 30). Rapoport defines the general lifestyle as the way people choose to live, behave, or engage in activities to distinguish themselves from others (Rapoport, 2013a, 16). ‘Georg Simmel’, believes that lifestyle is the manifestation of a human attempt in seeking his/her basic values in their objective culture to represent it to others. In other words, human being adopts behavioral forms (appearances) to address his/her desired concepts (superior personality) (Simmel, 1948, 314).

Many studies have been conducted about the influence of culture on the form and appearance of a house. Rapoport’s theory of cultural attitude toward architecture seeks to attribute building appearance to cultural needs (Armaghan, Soltanzadeh & Irani Behbahani, 2015). According to him, lifestyle is defined as a component of culture that affects both the quality of life and the built environment (Rapoport, 2013a, 10). According to ‘Pierre Bourdieu’, lifestyle is the order of systematic works or classifying tasks, and the kind of discriminant signs that are represented in the distinctive appearance of space. In this approach, the house works as a space for spatial representation of the behavior, actions, and interactions of individuals towards each other and is known as a place that its spatial organization and elements are continuously changing according to the type of lifestyle (Ebrahimi, Soltanzadeh & Keramati, 2017, 30).

To him, the style has the greatest ability to present features that summarizes all activities (similar to an equation in which a curve is included) (Bourdieu, 2016, 54).

‘Edward T. Hall’ (2000) in explaining the theories related to human presence and his/her use of space, has expressed the issue of ‘proxemics’, which as a manifestation of sub-culture is composed of three aspects of ‘fixed’, ‘semi-fixed’ and ‘dynamic’ features. Based on this, a building house is a manifestation of a fixed pattern that is represented from the inside based on specific cultural patterns. These patterns may include the way of life or the family structure.

‘Thomas Højrup’, the Danish ethnologist, in his book entitled ‘Nation, Culture and Lifestyle’, introduces three types of lifestyles, including ‘self-employment’ (integration of workplace and house), ‘bread salary’, and the ‘occupation at home’; this classification shows that the income level, workplace, and personal work style will change the needs and priorities of the house (Ebrahimi, Soltanzadeh & Keramati, 2017, 31).

‘Max Weber’, was another theorist who has dealt with the subject of lifestyle. He believes that lifestyle, includes values, and common customs that give a sense of collective identity to a group, but they are not equal to what is commonly used as a lifestyle; that means they freely adapt it as a way or style of life that is in accordance with the psychological needs of individuals (Tavassoli, 1994, 62). According to the mentioned theories, lifestyle can be considered as a set of human behaviors that are manifested objectively based on the epistemological foundations (Fazelian & Eghbali, 2017, 71).

‘Rapoport’ believes that the ‘organization of environment’ is dependent on the organization of four elements of ‘space’, ‘time’, ‘communication’ and ‘meaning’, as an equivalent to a series of communications that points to the connection between the environment and people (Rapoport,
By reviewing various theories about the place, it seems that three principles of ‘distinction’, ‘connection’ and ‘continuity’ constitute the principles governing the place, and there is an agreement on them. These principles are independent of the positive or negative values that govern the processes of perceiving meaning. A distinction is a necessary precondition in receiving meaning, as meaning cannot be supposed without the connection/relation. On one hand, the principle of continuity makes sense in confronting discontinuity, and on the other hand, its protection of originality and identity will happen in the context of time due to having a nature of time (Alalhesabi, Rezazadeh & Charbogoo, 2017, 19).

In traditional houses, the physical function and structure were used to be formed by the inner meaning of architecture, environmental issues, and the type of daily activities or lifestyle of the local people. The Iranian house has been formed in relation to the Iranian lifestyle, and according to the standard of living in the house, spaces have led to the formation of the liveliness concept in space (Sheybani & Pourssoleiman Amiri, 2018, 53).

The Iranian architecture of the residential building has presented valuable and unique examples to architectural art over time; kind of examples that represent unique patterns of human space in accordance with the human natural life (Kabirisamani, Malakooty & Yadegari, 2017, 62). This architecture has always satisfied the needs of its individual, as this response has been represented in the form of architectural elements with various features; a kind of Architecture that has valuable characteristics, but is not common today; the reason for this happening is arising from the unknown nature of this architecture and its constituent elements (Bahrani & Sephri Ahrami, 2018, 77). In contemporary houses, series of events have changed the morphology and meaning of housing such as the population density, variations in land per capita, the spatial and structural connection, and changes in regular activities, and lifestyles. Contemporary houses are usually being designed in the form of apartments and residential complexes; The needs of modern life lead the designers to physical or semantic elimination of certain social elements in housing, while an individual in the traditional house was used to live in kind of multipart houses with a strong sense of community (Sheybani & Pourssoleiman Amiri, 2018, 47).

One of the elements in this kind of architecture, which is especially evident in the houses of the Qajar era, is the ‘closet space’ or in Persian, ‘Sandogh-khaneh’. This is an important element that has been formed in traditional houses under the influence of culture and lifestyle of that time; this architectural space, despite representing an important function in fulfilling the family need, has not received enough attention, due to being an inner space or having a minor role.

The main purpose of this research study is to investigate the ‘position’, ‘role’, and ‘function’ of the closet space as a minor element in the structure of Iranian houses and to study the function of this space in that specific residential structure. For this purpose, at the first step, the concept of ‘Closet-Space’ has been studied and then the role of this space has been analyzed by reviewing different sources; the various functions of this space are then analyzed from different aspects. To perform the analysis precisely, the old houses in Yazd city have been visited and their architectural ‘plot plans’ have been evaluated.

**Research question**

As mentioned earlier, the purpose of this article is to address the role and function of the closet space as an architectural element in traditional Iranian houses and to study their different types accordingly. The main question of this research is to address the role and function of ‘Closet-Space’ in traditional Iranian houses. Other questions have also been addressed in this study as below: In traditional Iranian houses,

- What types of closet space were available?
- What were the reasons for creating such an interior space?
- Where did they use to be located?
- What did they use to share in space?

Research method
The qualitative paradigm and descriptive-analytical research method were adopted for this research study. To collect data, the research methods in documentary analysis, followed by the observational field studies. In library studies, various sources were used to gather the required information, including credible sources of peer-reviewed journals and reference books. For this purpose, the related books and articles were reviewed and the notes were taken. The maps of houses and historical sites were also been used in this study. The old traditional houses of the city of Yazd as a World Heritage Site were also been visited for launching the survey. Based on the collected information, the analysis was then performed by researchers.

Theoretical foundation
- Closet-space in traditional Iranian houses
Besides the human’s needs for connecting with God and nature, he/she also needs to communicate with other individuals through establishing a social life. In addition to these three important bases, communication with one’s self is also very important. The human’s identity then will be formed as a result of these connections. For this reason, special attention has been paid to all four elements of communication in spaces of the Iranian houses.

Among the main features of Iranian architecture that can be realized in traditional houses the following can be mentioned: ‘Introversion’, ‘centrality’, ‘transparency and continuity’, ‘geometry and proportions’, ‘balanced stability’ and perceptible equilibrium of communication with the Nature (Diba, 1999, 97); in this regard, privacy is one of the items that are considered by the Iranian architects. ‘Rapoport’ has defined privacy as the ability to control social interaction, the right to choose, and the possible favorite social interaction an individual could have (Lang, 2002, 165). Privacy means adopting to be alone, to sit alone, having privacy in a house, a place of comfort, a private room, a nave [Shabestan], a place of perfection in which the sole-mate union will take place. The spaces in Iranian traditional houses are formed to meet this requirement, so everyone, based on their age and habit, can have a comfortable space for his/her privacy and solitude in the house. As the memoirs of inhabitants in these houses point to a kind of spaces (such as the cozy, comfortable corners, spare room known as Pastoo-khaneh, and some other similar spaces) they used to have a special affection to them (Abdollahzadeh & Arzhmand, 2012, 116).

The Iranian architects, relying on their architectural style, used to create a space for privacy and tranquility of the residents. Spaces such as Pastoo, closet rooms, cozy spaces, corners, or private spaces are often used to make a connection with both self and God to meet this request. However, the names such as guest house (Mehman-khaneh), closet room (Closet-Space), kitchen (Matbakh), royal space (Shah-Neshin), attic (Bala-khaneh), and firewood space (Hizom-khaneh) for house rooms indicate that these special rooms were allocated to functions and not to individuals (Khamenehzadeh, 2017, 37).

On the other hand, in Iranian architecture, the existence of regular sequences and order in spatial organization, in the occurrence of activities, and views and movements are considered as the basic architectural rules. The existence of such hierarchy in architecture is related to the concept of confidentiality in Iranian culture. However, ‘confidentiality’ is a relative concept that has its mechanism depending on the rules of each society (Rahimi, Ansari, Bemanian & Mahdvinejad, 2020, 18).

According to the Dehkhoda dictionary, a closet room is a small space at the back of a room in which clothes and closets were placed; the word ‘Pastoo’ is defined as an equivalent to this word.
According to the field study in this research, it seems that the most indicative of this space in the structure of houses, points to a space that was built in the corners of the interior space, that due to the placement of different clothes boxes or closets, the name of the closet-room or closet-space was adopted for it. Although these spaces may have been of particular importance due to the dominant culture of that time and the distribution of house spaces into two main spaces of ‘interior’ (Andarooni) and ‘exterior’ (Birooni) space, the significant point here is that the closet-rooms were the most enclosed spaces of interior spaces that in connection with other house compartments used to form a unique combination of flexibility to the structure of the house to respond different needs of house-dwellers.

“The room was able to be expanded in this way by adopting a closet room and Pastoo on one hand and the existence of a porch in front of the house on the other hand; so various types of living spaces from semi-open to closed living spaces were available to meet the different needs of the house residents” (Armaghan, Soltanzadeh & Irani Behbahani, 2013, 37).

This concept has been frequently found in Iranian ancient literature, indicating the existence of such spaces in the residential structure of Iranian houses for a long time. For example, in a part of the story of ‘Khosrow and Shirin’ by ‘Nezami Ganjavi’, the main character, ‘Khosrow’, after passing three months of restlessness, goes in companion with his mistress ‘Shirin’ to his treasury, which was a closet room, to face with the hidden and secreted treasures of sorrow he had and to cure his anxiety.

“Khosrow, in companion with Shirin, entered his secret treasury space; a place conveying a symbolic meaning; A prominent symbol of the mysterious territory of the unconscious; A place where the wise man (Pir-e Dana) manifests himself to Khosro Parviz in a more symbolic way and offers him the way to attain spiritual unity again. The Treasury Room (Ganj-khaneh) pointing to a place comprising 40 rooms; A symbolic number of perfection; Khosrow Parviz’s forty-room treasure space is nowhere but the realm of his subconscious; The realm where the Khosrow Parviz’s life path through a symbolic revolution and bring him to perfection and maturity; The symbolism of the treasury space also symbolizes its hidden and secreted treasures” (Hashemi & Jafari, 2011, 121).

In a contemporary poem, written by ‘Saeed Biabanki’, this concept can also be found in lines of the poem as below:

“Take me to his/her cozy closet room
I suppose his/her homemade wine is ready”  
Or similar concepts in lines of ‘Forough Farrokhzad’’s poem:

“Those days are gone
Those days of fascination and wonder
Those days of dream and vision
Those days, when every shadow had a secret
Each covered box of closet-room was concealing a treasure”.

In current stories, similarly, the footstep of this element can be followed in some poems or stories. For instance, in the story of a plant in the quarantine written by Bijan Najdi:

“He puts a bowl of water, forty plates of rice, and a plate full of eggs over his bedhead” (Jahandideh Koodehi, 2012, 131).

“Any time he wanted to forget something, he would run to the closet room and look at the lock by using two mirrors” (ibid., 132).

“After diagnosing Tahir’s disease, the closet-room is turned into a dark room for Tahir’s care. In this dark room, part of the ritual and mysterious ceremonies of public culture is performed. Tahir’s entry into this care room has revolutionized him into another
human being. The closet-room is an example of vegetal quarantine and uterine” (ibid., 141).

- **The Functions of closet room (Closet-Space)**

According to the common culture in the history of this land (Iran), the closet room is found nearly as a chief element in all Iranian houses; some houses have one closet room, while others with higher income, might have more than one. The element of ‘closet room’ frequently can be found in different king’s palaces, the school’s old rooms (Hojreh), and similar spaces. It seems that the most key function of the closet rooms was keeping the clothes boxes. However, by reviewing various sources, it can be realized that this key element had extra functions in the physical space of the house (Fig. 1). Some of these functions are as below:

- **A space for placing some items to be out of others’ reach and probably for hiding some objects.**

“‘Closet room’ or ‘Pastoo’ was a small room next to the main room where the objects like boxes, stuff, and similar accessories were usually placed in it” (out of sight of others) (Rashed, 2008, 228).

- **A storage for keeping household supplies**

“Closet-Space is a small warehouse inside the ‘Karaan’ (traditional cupboard) that was allocated for storing the household’s weekly necessities such as wheat, barley, and flour” (Gorji Mahlabani & Sanaee, 2010, 13).

- **Creating a private space for the family, especially for keeping and increasing the parental privacy**

“Constructing a space resembling a pre-entrance room in addition to creating a spatial hierarchy, that prevents direct entry into a specific space. Additionally, by building a closet room, Pastoo and similar spaces, more depth will be given to that space, which increases confidentiality and privacy” (Peyvastehgar, Heidari & Islami, 2017, 64).

Or similarly:

“In this regard, creating spaces such as closet rooms,
attics, corner upper rooms (the top rooms located at both sides of the royal room (Shah-Neshin) called Gooshvareh) and similar spaces to provide privacy for residents, especially parents, is one of the practical solutions that the traditional [Iranian] architect has used to create privacy at interior home space” (ibid., 57).

- Separating the paternal space from those allocated to the children to preserve the confidentiality

“Providing privacy for house residents, especially to protect the privacy of parents and emphasizing on separation of their private space from other rooms (especially those allocated to children) has been considered as one of the most important concerns of architects and constructors in traditional Iranian architecture” (ibid.).

- A place for preserving extra items

“Closet room or Pastoo. A place for preserving extra stuff” (Hedayat & Tabaian, 2015, 43). “Or the items that are not allocated for everyday use, and are gathered in a closet-like space” (Gholam Ali, 1977, 211).

- A place for keeping sleeping and resting stuff, and the jewelry and valuable things

“There was only a box where women used to place their precious jewelry, cups, sugar bowls, and mirrors as part of their dowry. A set of backrest pillows, quilts, and mattresses, all of which were folded and wrapped in a woven cloth (chador-shab); they were set aside in the morning and spread at night. Each corner of the inner space had a room called a closet space (Pastoo), where women put their clothes and other personal objects there and also used to place their bed’s stuff in that space during the day” (Mahdavi, 2013, 121). Or in a similar text,

“Each room was consisted of several traditional shelves (niche, known as Taghcheh) for stacking dishes, shelves and wooden traditional closets (Kata and Ganjeh) for placing books and hidden items, and a shelf for utensils and small, non-essential objects, and a traditional wooden cupboard (Closet-Space) Korsi, bed stuff, clothes box, kitchen utensils, and Samavar (A traditional boilermaker)” (Shahri, 1999, 246).

- A place for resting

“A place allocated for resting away from the household chaos” (Abedi, 1989, 22).

- A place for worship, meditation, and praying

“The closet spaces and rooms, cozy corners are examples of spaces used for praying at home. Houses with this kind of characteristics provide conditions for the individual to have privacy, to meditate, and doing self-review” (Arzhmand & Khani, 2012). Or

“The privacy concept in most [Iranian traditional] houses is attached to the closet space, or Pastoo, a palace that lets someone think, experience the presence and peace of heart, and fulfill his/her spiritual needs” (ibid.).

- A characteristic of Muslim houses for providing privacy

“The closet space is considered as one of the Islamic characteristics identical to the Muslim houses as a private space” (Boluoki & Okhovat, 2015).

- A special place for rich families, with a function of ‘lock- box’ (Gav-Sandogh)

“One of the main facilities of the royal houses during the Nasserite era” (Yousefifar, 2011, 35).

- Validating the side spaces by developing their functional and spatial features

“Inside the main hall, the presence of decorations and niches (Taghcheh) or closet spaces at the end of it, makes it special” (Diba, Revault & Santelli, 2012, 174).

- A place for isolating patients

“…At first, he (she) thinks Taher has measles; So they perform ritual ceremonies; they bring him to the closet-room, and cover the windows with red curtain; to not let the alien impure people visit Taher; They put a bowl of water, forty plates of rice and a plate full of eggs over his bed-head” (Jahandideh Koodehi, 2012, 131).
Scope of the research study
As mentioned earlier, the purpose of this research is to study the typology of closet-space and rooms; the World Heritage City of Yazd has been adopted for this object. Many houses in Yazd are registered as cultural heritage and there are plenty of related maps and reliable resources about them. To perform this, eighteen samples among the registered houses in Yazd were initially identified. Following this, six houses were selected that either the location or layout of the closet space was distinct from other samples. These six houses were selected among either the grand houses with multiple courtyards or houses with medium sizes and also from the small houses equipped with single-yard. At the first stage, these six samples were thoroughly examined, and then by adopting the samples, the general typology of closet spaces in traditional houses of Yazd city has been performed.

These traditional houses in Yazd generally belong to the time of Qajar and Pahlavi era; and the target houses in this study belong to the Qajar era. These houses are designed in coordination with the climate condition and provide a proper living space for the desert inhabitants by creating ‘deep courtyards’, ‘full of shadow’ inside of the building and through connecting and merging the living spaces with that open spaces; in this kind of housing, special attention has been paid to locating the semi-open spaces and placing water ponds and gardens full of Green plants. The characteristics of these kinds of houses have been presented in Table 1.

The typological analysis of closet spaces
• Typology of closet spaces from geometrical and form aspect in traditional houses in Yazd
Make a difference between insiders and strangers, familiar and unfamiliar, is not limited to a particular culture or community. All human beings in different cultures separate the private and public areas somehow.

To all individuals, the common area is where meeting unfamiliar persons would be possible while meeting the close relative happens in the private area. In Iranian houses, despite the presence of private space, some external space is also represented, to make a condition for meeting strangers in the housing space; the placement of this space is such that the existence of the outside space will not decrease the sense of internal privacy. Having privacy is required for any suitable living environment. The existence of privacy in the living space can provide a proper condition for improving the individual and social dimensions of inhabitants. Moreover, the family’s comfort and proper communication space to make a relation with each other and even with other relatives requires a private space in housing; since a house is a place where calmness is flowing, it requires a kind of privacy (Arzhmand & Khani, 2012, 27).

There are some supporting spaces for main spaces in Yazd traditional houses such as Pastoo, closet space, storing space, Doolab (A traditional wall cupboard with a double door for keeping objects). These supporting spaces represent different forms, dimensions, and locations according to the spatial patterns they are allocated for (Ismaili, 2016, 11). The closet spaces are placed in different parts of the Iranian houses, next to two-door, three-door, five-door rooms, or either close to the hall corners, corridors, and Orsi windows (kind of sash window, made of wood frames and colorful glasses found in traditional Iranian houses). These spaces are commonly known as secondary spaces, so the type of decorations and aesthetic aspects used in them are variable. In this kind of house, the closet spaces are in accordance with the other parts such as niches (Taghcheh) and higher wall shelves, called ‘Raff’ in the walls for placing stuff; however, in some houses, these spaces are present without any niches or shelves simply in the form of plaster decoration.

The spatial organization in closet spaces is in continuation of the structural arrangements of
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Table 1. Identifying the target houses in Yazd. Source: Authors; Source of maps and photos: Hajighasemi, 2004.

<table>
<thead>
<tr>
<th>House Name</th>
<th>Photo</th>
<th>Architectural map</th>
<th>Characteristics</th>
</tr>
</thead>
</table>
| The House of Ardakanian                        | ![Photo](image1) | ![Architectural_map_1.png](architectural_map_1.png)                              | - Located in the butcher’s region in the old part of Yazd;  
- About 140 years old;  
- Built in the effort of ‘Mullah Ali Ardakani’ and his brother;  
- The house consists of two separate courtyards. Both of them are rectangular, with a north-south axis. The western part is larger than the other ones, but the eastern part comprises more detailed and decorative items;  
- Most of the spaces both in yards or houses are built on a single ground floor;  
- Both courtyards are surrounded from three sides, North, West, and South, equipped with different spaces; the walls of the fourth side (southeast) in both yards are cut and framed. |
| The House of Farhangi & Mozaffari               | ![Photo](image2) | ![Architectural_map_2.png](architectural_map_2.png)                              | - Located in the Arab region called ‘Posht-Bagh’, in the area known as ‘Darband Arab’;  
- The housing area is 100 years old;  
- The North house was founded by ‘Ali Mohammad Farhangi’ and the South house by ‘Mohammad Hossein Mozaffari’;  
- Both central courtyards are rectangular and are located on the northeast-southwest axis;  
- The main entrance of the house is located between the two courtyards, in the eastern corner of the southern courtyard; it is connected to the southern courtyard (large courtyard) by a short corridor and the southern corner of the northern courtyard through a corridor with a few turns;  
- The main spaces of the two houses are located on the four sides of the courtyard, facing the main courtyard, and the sub-spaces are located in the corners and the second layers of space behind the main spaces. |
| Mr. Wye’s house (Mehraban Goodarz)              | ![Photo](image3) | ![Architectural_map_3.png](architectural_map_3.png)                              | - Located in the ‘Saretal’ region of Yazd;  
- Belong to a person named “Mehraban Goodarz”;  
- About 120 years old;  
- The building ground is rectangular and has two courtyards. The big yard is located in the middle of the main part of the building. Most spaces around the main courtyard have one floor, but the alley’s courtyard is a two-story building space, excluding the garden bed;  
- Besides the two mentioned courtyards, the house contained two very small courtyards in the north of the housing area;  
- This house used to have a long windbreak on the southwest side, located at the end of the embedded main room (Shekam-Durideh) of the house;  
- The main spaces of the house are placed at the main side of the yard, while the side- spaces are located in the corners and the back layer of the main spaces. |
| Arab House of Yazd                             | ![Photo](image4) | ![Architectural_map_4.png](architectural_map_4.png)                              | - Located in a region called ‘Shah Abolghasem in Yazd city;  
- Founded by one of the sons of ‘Haj Mohammad Ali Arab’;  
- About 130 years old;  
- The Arab House was an area with several courtyards between closed and semi-open space;  
- The housing area is nearly located at the northwest-southeast axis, with the courtyards in a rectangular shape;  
- The house has the same height at almost all parts, and so, its total dimension seems like an integrated unit, as if the yards are engraved in it. This issue has elevated the importance of the courtyards and has made them an identifying element in different parts of the house;  
- The house has a variety of hall spaces with a cruciform base which is equipped with hall spaces, five doors, earring rooms (Gooshvareh: rooms located on both sides of royal rooms on top or Shah-Neshin in traditional Iranian architecture), and other similar arrangements. |
other spaces and rooms placed next to it. So, these spaces have relatively high height comparing to other arrangements and are nearly as high as the surrounding rooms with three-door or five-door. In these cases, there has been another roof installed over the main roof, by using a multilayered (Lapoosh) technique to maintain the spatial balance. Depending on the location of closet space (Pastoo), it is accessible from different sides. The closet spaces located at the end of the three-door and five-door rooms were accessible through a door positioned on the axis of the three-door room. In some cases, when the closet spaces were large in dimensions, there has been some access from the end of the corridor (See Table 1).

Studying the target samples of traditional houses in Yazd indicates that the shape and the spatial proportions of the closet spaces were not following a certain structural rule. In some cases, due to their specific position, a golden rule of dimensions and proportions was available. However, some closet spaces lack a proper proportion, as they do not follow a specific geometry with a precise rule (Table 2). The closet spaces reviewed in Yazd traditional houses were following kind of typology as below:

- **The spaces with proper dimensions in proportion to the niche (Taghcheh) and high shelf (Raff) decorations on the walls**

These kinds of closet spaces have specific dimensions and proportions, as their width is typically equal to the sizes of two or even three niches, which allows a small space to be located inside it. Basically, such closets spaces include...
niches and high shelves for placing additional stuff and objects. Since these spaces are placed in the second and third spatial layers in relation to the courtyard, providing light for these spaces was possible only by opening the adjacent door to the main rooms. In conditions when these rooms were representing more special use, there was some ‘light-transmitting structure’ inside the niches in the form of ‘Orsi’ (Sash) windows with colorful glass, located at two niches on both sides of the closet door, to provide some light for the closet space. In these cases, they were allocated for rest and recreation. Among the target samples, the houses of ‘Meshkian’, ‘Ardakanian’ and ‘Farhangi-Mozaffari’ were representing a quite similar pattern.

**- The spaces with rather small dimensions and proportions; Architectural decorations in niches and high shelves in the walls**

In this type of closet space, Pastoo is as wide as a niche and commonly has niche decorations and high shelves in the walls. Considering the small size of the space, a false ceiling by using a multilayered technique has made the space height proportions suitable and desirable. This space usually was used for placing the sleeping stuff and served as a recreation space for one person. Generally, these spaces are located at the end of the two or three-door rooms, and in some cases even at the end of a five-door room. Among the studied samples, the houses of ‘Ardakanian’, ‘Farhangi-Mozaffari’ and ‘Rismanians’ have kind of closet spaces that fall into this category.

**- The spaces with a specific geometry lacking decorative items, such as niche (Taghcheh) and high shelf (Raff) in the walls**

These types of closet spaces are either located at the end of the corridors or next to the kind of main spaces or secondary spaces. These closet spaces (Pastoo) neither have a specific dimension and proportion, nor a special decoration inside the space; in some cases, for completing the geometry of the cruciform and embedded spaces, they are placed next to them with a very small dimension. This type of closet space (Pastoo) was available in all types of target houses.

**- The spaces without a specific geometry, sometimes in an angular shape**

These types of closet spaces were uses to form in the corners of the spaces, due to irregular ground with no definite proportions; in some cases, they had corners without a specific geometry. They were usually used as storage space next to the second spaces, along the corridors. Examples of this type of house are available in ‘Mr. Wye`s house’ (Mehraban Goodarz), ‘Rismanians’ and ‘Arab’ houses.

- **The factors affecting the location of closet spaces in traditional Iranian houses in Yazd**

A closet space depending on the importance and its interior function used to be located in different places either next to the main and secondary spaces, or even close to the open and semi-open spaces on different floors. The location of the closet space, although was influenced by behavioral and functional events in the secondary layer of the private space, this location was mostly influenced by other factors as well, such as:

**- The necessity of responding to the functional needs**

Basically, the importance of closet spaces is sometimes because of their supportive role, as these housing facility spaces have been formed next to the living areas of the house, where it has been a place for putting additional furniture and objects, for sleeping stuff and wardrobes, and a place for resting and so. Therefore, the related functions provided conditions for their location in the second layer of private areas or behind the three-door and two-door rooms in traditional houses. In some conditions, these spaces were available in the common areas of the house, close to the seven-door and ‘sash rooms’ (Orsi), or even next to the halls for placing the related stuff of these spaces. Wherever there was a need for supportive and facility spaces, the closet spaces were available with small dimensions and various forms.
Table 2. The typology of closet spaces from the point of geometry and form in traditional houses of Yazd. Source: Authors; Source of sketches: Abdoli, 2020.

<table>
<thead>
<tr>
<th>Type of Closet Space</th>
<th>Location of closet spaces in sample houses</th>
<th>A sketch of closet space</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Spaces with dimensions appropriate to the niche and high shelf decorations on the walls</td>
<td>Farhangi &amp; Mozaffari House</td>
<td>Ardakanian House</td>
</tr>
<tr>
<td></td>
<td>The location of these spatial types of housing and the way of pointing the walls represent the importance of this type of closet space. They are generally located next to the primary spaces and have appropriate dimensions in addition to the spatial proportions. The property owner considers this house as a secondary room, trying to organize the space and its equipment in a proper way appropriate to the niches and high shelves.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spaces with rather a small dimension and proportions; the niches and high shelves decorations are considered in the walls</td>
<td>Rismanian House</td>
</tr>
<tr>
<td></td>
<td>In this type of closet space, despite a decrease in space volume, there are still niches and high shelves in the wall, that depending on their location, represent various functions such as storage or resting place. However, the presence of niches and high shelves represent the importance of this type of closet space.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spaces with a specific geometry, without considering any decorative item on niches and high shelves in the walls</td>
<td>Ardakanian House</td>
</tr>
<tr>
<td></td>
<td>In this type of closet space, the special volume varies from small to large, but in case of significance, it is of secondary importance comparing to other groups; the decorative elements such as niches and high shelves are very limited in these species. The function of these species differs from a place for rest to a storage place according to their location next to the three-door or five-door room, or even at the end of the corridors, or sometimes in the vicinity of the entrance porches.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The spaces without a specific geometry; sometimes representing corners</td>
<td>Arabs House</td>
</tr>
<tr>
<td></td>
<td>These types of closet spaces are lacking a specific dimension, size, and geometry; furthermore, they do not represent a primary space, and therefore the lack of niches and shelves, indicates the less spatial importance of this type of closet spaces; their function indicates a storage place for keeping tools that were mostly used in yard and entrance spaces.</td>
<td></td>
</tr>
</tbody>
</table>
- Assisting the architect to improve the spatial organization
The traditional architects generally had special priorities in spatial organization, as in condition with irregular ground map, the geometry of the main spaces of the house were of great importance; most of the houses had courtyards with precise geometries in rectangular, square, or octagonal shape. So, the second priority for architects at that time was to acquire the regular and appropriate geometry of the main enclosed spaces including three-door, five-door, hall, and seven-door rooms. But considering the spatial organization, generally at the end of the room spaces, parts of the ground map were remained either regular or irregular, which usually were turning into closet spaces behind the enclosed spaces. In these cases, while addressing the issue of irregular ground, the need for functional and supportive use of backspaces, behind the main enclosed spaces was also addressed.

- Response to the proper spatial ‘proportions and quality’
In traditional Iranian houses, three-door, five-door, or even seven-door rooms were lined up with a middle space of corridors or halls, all on one side of the courtyard. The five-door rooms were usually wider with more depth, typically located on the axis of the main direction; however, the three-door rooms on both sides of it had generally less width, and complete use of the depth in these spaces caused a spatial elongation and consequently an inappropriate proportion in these three-door rooms. In these cases, the Iranian architect, by designing the closet and supportive spaces at the end of the three-door and two-door rooms, prevented the room elongation and inappropriate proportion, as provided two separate, interconnected spaces. It should be considered that a structural reason was behind the small width of the three-door rooms compared to the five-door rooms; a necessity for reducing the ‘lateral structural drifts’ in roofs and maintaining the built structure.

- The location of closet spaces in traditional Iranian houses of Yazd city
The spatial location is very important in architecture and has an effective role in facilitating the various functions of spaces as it can improve individual relations. If spaces are placed in an inappropriate location in relation to the next spaces, they cannot represent their role and function accurately. In different architectural conditions, the importance of spatial location in houses will be increased, as the lack of spatial segregation between the private and public areas and the interference of these areas, prevent a proper privacy space for family members and a suitable area for communication between family members or between family and their visitants, which all can prohibit the family’s personality development. The design of various interior and exterior layers to separate private and public spaces has been one of the masterworks of the past Iranian architects. The closet spaces are usually placed in one of the following locations; the access way was available mostly from the adjacent living spaces, halls, or corridors.

- At the end of the three-door and two-door rooms
Considering the interior functions of the closet spaces, they are interruptedly related to the private spaces of the house. Although separating the private and common spaces in traditional houses are somehow different from what is presented in the current houses, and complete separation is sometimes impossible, but generally the two- and three-door rooms are considered as more private housing spaces. According to the implemented typology, it can be claimed that most of the closet spaces were located at the end or behind the two- and three-door rooms, which were mostly accessible from the room axis.

- At the end or two sides of the five-door spaces or ‘sash’ (Orsi) with a cruciform pattern
The closet spaces were rarely available at the end or next to the spaces of five-door, seven-door, and sash rooms; however, in some cases where the geometry of these spaces represent a cruciform and embedded
pattern, the corners of the spaces are usually turned into closet spaces for placing extra objects and accessories of the room, such as the sleeping stuff and other related things.

- **On two sides of the hall spaces**

In some houses, on both sides of the semi-open spaces and halls, especially when there was a windbreak at the end of the hall, with embedded geometry, the side spaces of windbreak were used as a closet space, especially in summer when the family member used to move the main living room to the hall space, where these spaces were usually used to provide conditions for keeping and serving the tea stuff.

- **Other parts of the house**

According to the functions attributed to the closet spaces, their location was not following a specific rule and used to be located beside the main or sub-spaces, on different floors, and in various dimensions and proportions. For instance, in many traditional houses in Yazd, due to the lack of heating and cooling facilities in the past, they had to adapt to nature. Therefore, to provide amenities for sleeping at night in summer, they had to move to the rooftop to achieve the desired condition. In these cases, to place the sleeping stuff and protect it from the weather conditions, the summer sun, and the strong winds, some spaces were built in the closet form in the corners of the rooftop to provide a space for keeping the sleeping stuff after a night sleep. Some examples of the closet space location in traditional Yazd houses are shown in Table 3.

**The spatial role of closet spaces in traditional Yazd houses**

As mentioned earlier, the closet spaces are considered as one of the functional and useful necessities for traditional houses in the city of Yazd. In these houses, depending on some factors as geometry and shape of the ground map, the proportions of the main spaces, the location, and the level of functionality of these spaces in Yazd traditional houses were different. Analyzing the target samples represents a share of 10% to 14% for closet spaces out of the total house area, which was about 7% to 11% of the basement area. Among the target houses, the ‘Arab house’ had the lowest percent of the closet spaces and was rather a scattered data compared to the other houses, with 4% of the grounds share and 6% of the basement area. Among them, the ‘Meshkian house’ had the largest share of the closet spaces (Pastoo), with 11% of the whole ground area and 14% of the basement area. It should be noted that in contemporary houses, part of this share of the closet space is allocated to cupboards and wall closets in living spaces, bedrooms, and receptions. It should be noted that in contemporary houses, part of this closet space is allocated to the cupboards and wall closets in living spaces, and also to the bedrooms and the hall spaces (Table 4).

**Conclusion**

This study aimed to analyze the role and function of the closet area in traditional Iranian houses and to review its typology in terms of physical structure and location. The ‘closet-space’ is one of the sub-spaces in traditional Iranian houses, which in some cases was created by the architect to follow the architectural geometry and spatial proportions, but generally, it used to represent a functional role to create privacy and interior space in the house. In fact, although these spaces were considered as a sub-space, according to the performed analysis, they used to represent the spatial functions that have separated them from other Iranian housing spaces. This space used to be considered as one of the innermost spaces in traditional Iranian houses which had functions including a place for rest, meditation, and worship, or served as a space for placing expensive or daily-use cheap equipment; the Iranian culture and the role of responding to the house inhabitants both were effective in creating this interior housing space. The closet space was used to create a private space for the house residents to provide a space with confidentiality and privacy,
or a place for keeping some items away from the others’ look, or for organizing both the outdoor and interior spaces. Although the closet space seemed to be considered as a sub-space in traditional Iranian housing architecture, it was one of the spaces formed according to the traditional lifestyle of Iranian houses and was tightly related to this life pattern; a kind of lifestyle that used to divide the housing space into the interior and outdoor spaces or to private and common parts, as the spatial design of each space was performed in relation to its function. In fact, in traditional Iranian houses, the closet space can be considered as one of the key elements highly influenced by the traditional lifestyle. Therefore, although this space was formed based on the architectural needs of the housing space, actually it was responding to the needs of the house owner; so based on this fact, the Iranian architect was trying to consider it in designing the housing space. Based on the analysis in this study, the closet spaces can be divided into four groups based on their geometry and shape:

- The spaces with appropriate dimensions, in accordance with decorations of niche and high shelves on the walls.
- The spaces with relatively small and elongated

Table 3. The Location of closet spaces in traditional houses of Yazd. Source: Authors.
dimensions, and the presence of decorations in niche and high shelves on the walls,
- The spaces with specific geometry but, no decorative element in niche and high shelves on the walls; and finally,
- The spaces without definite geometry and sometimes with corners.

These spaces, by having an area of 10% to 14% out of the house area, and various functions were used to create a special space for the house owners according to their needs. Based on the acquired data, these specific spaces were used to be created in different parts of the house due to the obligations of the architectural design or under the influence of the housing functional needs, that according to their location, they were representing various functions.

As, in remaining traditional target houses in Yazd, the closet space can be found in different housing areas, either next to the main spaces such as the halls/corridors or in one of the house corners. Each of these spaces used to play a different role in these houses based on the various needs. According to the evolutionary changes that happened in the structure of Iranian houses, the closet spaces have been replaced by other options such as the cupboards and warehouses that today are used only for keeping stuff and are not a suitable alternative for the other functions of the closet spaces at the past time.

### Endnote

1. Rozeh Khani: A ritual mourning ceremonies of Shia Iranian Muslim during Muharram.

### Reference list


<table>
<thead>
<tr>
<th>House Owner</th>
<th>House Area</th>
<th>Courtyard Area</th>
<th>Basement Area</th>
<th>The Area of Pastoo &amp; Closet-Space in proportion to the ground area</th>
<th>The Area of Pastoo &amp; Closet-Space in proportion to the basement area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ardakanian House</td>
<td>1492</td>
<td>503</td>
<td>989</td>
<td>118</td>
<td>7%</td>
</tr>
<tr>
<td>Farhangi &amp; Mozaffari</td>
<td>2137</td>
<td>702</td>
<td>1435</td>
<td>178</td>
<td>8%</td>
</tr>
<tr>
<td>Mr. Wye’s House</td>
<td>1208</td>
<td>237</td>
<td>971</td>
<td>98</td>
<td>8%</td>
</tr>
<tr>
<td>Arab House</td>
<td>2459</td>
<td>871</td>
<td>1588</td>
<td>99</td>
<td>4%</td>
</tr>
<tr>
<td>Meshkian House</td>
<td>1260</td>
<td>285</td>
<td>975</td>
<td>140</td>
<td>11%</td>
</tr>
<tr>
<td>Rismanian House</td>
<td>1458</td>
<td>368</td>
<td>1090</td>
<td>109</td>
<td>7.5%</td>
</tr>
</tbody>
</table>


- Ismaili, L. (2016). Dar josteejoo-ye hendese-ye penhan-e khane ba gozar az zendegi (rabete-ye sazman-e fazaei-ye khane va chegounegi-ye zistan) [In search of the hidden geometry of the house by passing through life, the relation between the spatial organization of the house and the way of living]. *Omran va Tose’e*, 4(7), 6-16.


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