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Original Research Article

Investigation of the Position of Liminality in the Architecture of Villa Houses in the Northern Area of Central Tehran Constructed During the Pahlavi Era Based on the Concept of Dwelling by Norberg Schulz*

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Abstract

Problem statement: Liminality as the middle state of the phase of rites of passage, including separation, transition, and incorporation of the viewpoint of pundit anthropologists, has a basic position in dwelling whose essence is the dialectic of settling and wandering in Norberg-Schulz's viewpoint; Therefore investigation of the position of liminality in spaces based on the result of explicating liminality in dwelling including hierarchy, articulation, openness and permeability, robustness, variety and dynamism is an essential matter in the field of creating spaces especially residential architecture as private mode of dwelling.

Research objective: The goals of this article are to investigate the position of liminality in villa houses of the Pahlavi era in the North of the central part of Tehran and the differences of liminality's position in different areas of those buildings in the first and second parts of Pahlavi era. Pahlavi era is chosen as the period of research according to fields and samples of changing liminality in residential buildings and Tehran is chosen as a place of research because it was directly exposed to these changes as a capital and model of other cities.

Research method: This descriptive-analytical research has been done through investigation cases based on inscriptive studying, field observation, documentation, and comparative analyzing findings.

Conclusion: The results of the research show that the position of hierarchy, articulation, and openness has been changed; In this way, inattention to these characters in the outer area of building's entrances, room entrances, and exterior spaces and surfaces leads to dominance of openness and separation; obscurity and sudden entry; and domination of other buildings; while the entrance of interior spaces in connection with stairs had more impressive role progressively and made transitional center in the whole of space. Moreover, robustness, variety, and dynamism have been figured agreeable especially in semi-opened spaces of the second part of the Pahlavi era, despite domination.

Keywords: *Liminality, Passage, Hierarchy, Articulation, House, Pahlavi era.*

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Introduction And Problem Statement

Anthropology experts¹ suggest that liminality is an intermediary situation within the three-phase process of transition. Among the dwelling theories, this situation holds an essential position within the concept of dwelling according to Norberg Schulz, suggesting that the human has a liminal and intermediate existence in the universe that settles through the dialectic between wandering and lingering in centers and oaths within the liminal spaces formed accordingly. Liminality thus holds a significant position in the process of creating settlement spaces -especially dwellings- as the essential goal of architecture given the imperativeness of providing shelter for individuals. On the other hand, the Pahlavi period has been chosen as a time that clearly organized the changes in the city and architecture. This era marks a significant period of transition with the emergence of new phenomena due to lifestyle changes, altering urban architecture and landscape following the lifestyle changes specific to that era. On the other hand, Tehran was directly exposed to such changes as the capital of the country and a role model for other cities and thus holds a special position in relevant research. Hence, the present work investigates the position of liminality based on the spatial features derived from the notion of liminality in dwelling in the context of villas in the northern areas of central Tehran. Therefore, the present work has been developed seeking to understand and examine the position of liminality within the mentioned temporal-spatial context aiming to offer a framework to study and design architectural spaces -specifically dwellings- with a liminality approach to dwelling. Moreover, the literature studied in the present work has been designed to focus on the concepts of liminality, dwelling, the concept of being at home, and buildings constructed within the second Pahlavi era. The literature study of the present work encompasses a study into the concept of liminality and its position within the notion of dwelling according to Norberg Schulz to understand and examine liminality features within architectural spaces. Subsequently, the next portion of the literature explores the position of liminality in studied cases following a study of the grounds and factors behind

the changes in liminality during the Pahlavi era. The analysis in this section has been performed based on liminality features derived from the study of liminality's position within the concept of dwelling and organized into the two main classes of hierarchy, articulation nature, openness and permeability; and robustness, diversity, and dynamism. Said features have been examined in each building in line with the process of passes from the outside to the inside within the three arenas of accessibility and entrances, exterior spaces and facades, and entrance spaces.

Theoretical Background

The theoretical framework of the present study has been designed to examine "liminality and its position within the concept of dwelling according to Norberg Schulz" seeking to understand the "liminal features of spaces in architecture".

• Liminality and its position within the concept of dwelling according to Norberg Schulz

Liminality is a transitional situation referring to existence within two situations at the same time and the beginning of a new event, period, or situation in life (Cyril, 2000, 1633; Merriam-Webster, n.d.). According to Van Gennep and Turner's anthropological studies, this concept concerns the intermediate stage of passage, including separation from the previous state, liminality, and joining a new situation in life, resulting in human's constant change in terms of identity and orientation (Turner, 1966, 94). This approach to liminality holds a special position with Norberg Schulz when it comes to the concept of dwelling. Understanding and explaining this position seeking to understand and study liminality features of space would open a new horizon toward the perception and creation and dwelling spaces with a liminality approach.

According to Norberg Schulz, dwelling refers to the establishment of an intimate relationship with an assumed environment based on an innate need to "identify" and "locate" through that environment. In this regard, the human establishes his dwelling in either of the four natural, collective, public, and private modes of dwelling

(Table 1) through “wandering” to arrive at an assumed place to “Linger” (Norberg- Schulz, 1985, 13 & 14). This dynamism indicates the “transitional” nature of the dwelling experience based on the mutual relationship between wandering and lingering (Wolford, 2008, 4). The essential position of liminality in dwelling is thus defined and manifested by how the understanding of lack of meaning is responded to (Zimmerman, 2008, 22). The position of liminality in the dwelling is concerned with the fundamental aspects of identity and situation based on an intimate relationship with the environment. This position encompasses “social”, “Spatial”, and “appropriation” aspects (Dovey, 1985, 46-48). These relations manifest the dialectics of “identity” and “communality” of dwellers within the relationship between the individual and community, and “Openness” and “closedness” within the relationship with the outdoors in the context of human-environment interactions, respectively (Gauvain & Altman, 1982, 28). The position of liminality in each arena of a place is set by how the abovementioned relations are established in it based on the three- phase process of passage. The criteria incorporated in the present study include the features of liminality in spaces considering the nature and qualities of the dwelling process in either of the four (natural, collective, public, and private) modes.

• Spaces’ liminality features in architecture based on the position of liminality in Norberg Schulz’s theory of dwelling

Assuming the definition of liminality as an intermediary stage within the process of passage and the formation of a transitional situation to arrive at Norberg Schulz’s dwelling space, liminal features in the dwelling would be as follows. The most characterizing feature would be defined in the process of separation from one center and arriving

at another to dwell, considering the imperativeness of moving across centers and passing according to the passage ritual. Liminal space would thus be hierarchical, a quality that entails some level of directional arenas along the process of appropriation (Aliniay Motlagh et al., 2019, 50 & 55).

On the other hand, every dwelling space is adjoined with its adjacent spaces through oaths as a distinct center with an entrance/exit, and its limen would be somewhere within the personal and collective identity of its dwellers (Norberg-Schulz, 1985, 13 & 23). Liminal space would thus possess an articulation nature whose components link the inside and outside akin to joints. In this regard, openness would be another property of liminal space considering the need for the outside to penetrate inside and the inside to be drawn outside (Norberg-Schulz, 1971, 25). This principle is realized through permeability and simultaneous introversion and extroversion in space (Meiss, 2013, 134-135).

Moreover, the fact that the function of transition in dwelling would be to change and become aware of identity and situation entails the necessity of robustness in liminal space as the capacity of spatial elements to change and adapt. On the other hand, dwelling depends on the existence of multiple spaces in the various modes of dwelling to allow for experimenting with the environment for habitation purposes as limen (Norberg-Schulz, 1985, 13-15). Therefore, diversity would be another property of liminality space, offering multi-functionality and diversity in line with the context of space (Bentley et al., 2017, 59-73). Another liminality property defined based on the mutual and dynamic relationship between wandering and lingering in dwelling and the imperativeness of diversity would be defined as dynamism, accentuating the dialectic

Table 1. The four modes of dwelling based on Norberg Schulz’s dwelling theory. Source: Authors.

Example	Realization manner	Dwelling modes
Natural	Selecting a part of the environment to live in based on natural capacities	Settlement
Collective	Coming together seeking cultural and economic transactions and exchanging feelings	Urban space
Public	An agreement between a group of individuals with shared values and interests	Institution
Private	Addressing individual personality aspects in a world of personal memories and spheres	House

between the dwellers and spatial elements throughout the transition process.

The features mentioned above come together to build a framework to understand, study, and design various dwelling spaces from the liminality visual exposure depending on “temporal” and “Spatial” conditions. Hence, said features have been examined in the studied cases considering the context and factors affecting the shifts in liminality during the Pahlavi era in Tehran.

Research Background

Considering the research question, Table 2 demonstrates the background on the concepts of “liminality”, “dwelling”, the position of being “at home”, and “residential building in Tehran during the Pahlavi era”. As the table indicates, the present study’s gain from the literature encompasses themes such as the nature of liminality, limen in architecture, and the concept and dwelling and home according to Norberg Schulz’s convictions. The developments in housing have also been examined with an emphasis on villas within the studied temporal and spatial context. On the other hand, the present work sets itself apart through its study of the position of liminality and the factors involved in it within the three arenas of passage in cases of Pahlavi-era villa houses in the northern areas of central Tehran. In this regard, liminal features in various architectural spaces derived from the exploration of the concepts of dwelling, settlement process qualities, and liminality changes have been considered within the context of Pahlavi-era urban architecture in Tehran.

Table 2. A brief literature review. Source: Authors.

Title and authors	Content	Method
“A Rereading of the Concept of Liminality in Architecture and the Explanation of its Denotational Hierarchies based on the Etymology of the Term and Architectural Thinkers’ Views” (Aliniay Motlagh et al., 2019).	Etymology of liminality concept and levels	Logical reasoning
“Liminal space in architecture: limen and passage” (Zimmerman, 2008).	Liminality, questioning, robustness	
“Wandering in dwelling” (Wolford, 2008).	The concept of dwelling and position of change, learning, and technology in it	Descriptive-analytical
“Home and homelessness” (Dovey, 1985).	Interactive relations and systems forming home	
“A cross-cultural analysis of homes” (Gauvain & Altman, 1982).	A comparative study of the interaction between the individual and group inside and outside homes	
“The course of the architectural evolution of Tehran’s housing during the Pahlavi era” (Janipour, 2000).	Various housing typologies during evolution and their formation contexts	Descriptive-analytical, secondary research, and field observations
“Barrasi-ye Vizhegiha-ye Memari-ye Voroudi-ye Khaneha-ye Tehran (Avakher-e Dore-ye Ghajar ta Payan-e Dore-ye Pahlavi-ye Aval)” (Yazdian, 2021).	The concept of home and entrance, a case study of entrances	

Research Method

The present work is a descriptive-analytical study employing the case study method through documentary studies, field observations, documentation, and comparative analysis. The rationale for selecting samples can be examined in three layers. The first layer concerns the selected area situated in the northern part of central Tehran (within the boundaries of Darvazeh Dolat from the east, Hafez St. in the west, Enghelab St. in the south, and Karimkhan St. in the north, (Figs. 1 & 2)). This decision was made considering the northward urban growth trend during this era. The area has witnessed changes in the development plan of the Dar-Al-khalafe Naseri and intra-urban transformations between the boundaries of the Dar-Al-khalafe Naseri and the First Pahlavi era (Hamidi et al., 1997), reflected on the scale of villas. Development space availability, abundance of gardens, favorable weather conditions, and connectivity with the northern areas of the city are among the factors involved in said transformations. Turning to the second layer, the authors chose to study the external appearance of buildings through field observations considering the context, factors, and manifestations of the shift in liminality during the Pahlavi era to examine how the change in the relationship between indoor and outdoor is manifested (especially in entrances). Moving on to the third layer, the authors examined the studied houses’ accessibility and their capacity in terms of internal space diversity and interconnectedness within

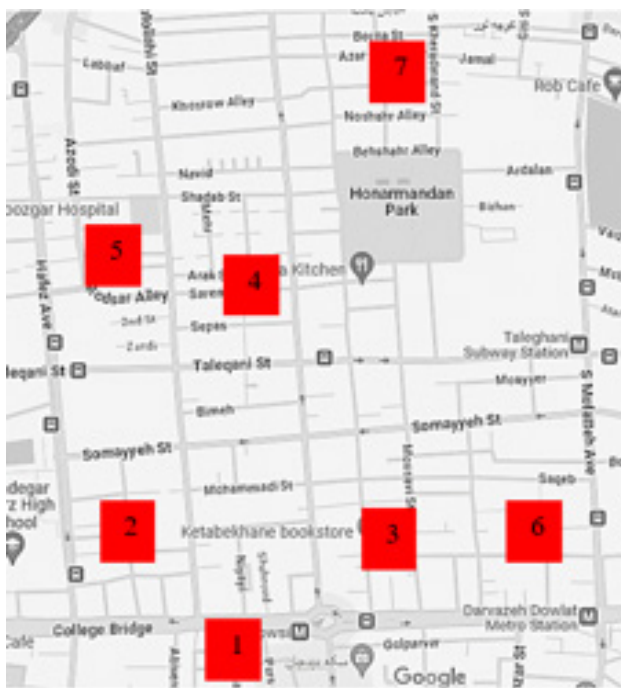


Fig. 1. Placement of the studied buildings in research area. Source: Authors.

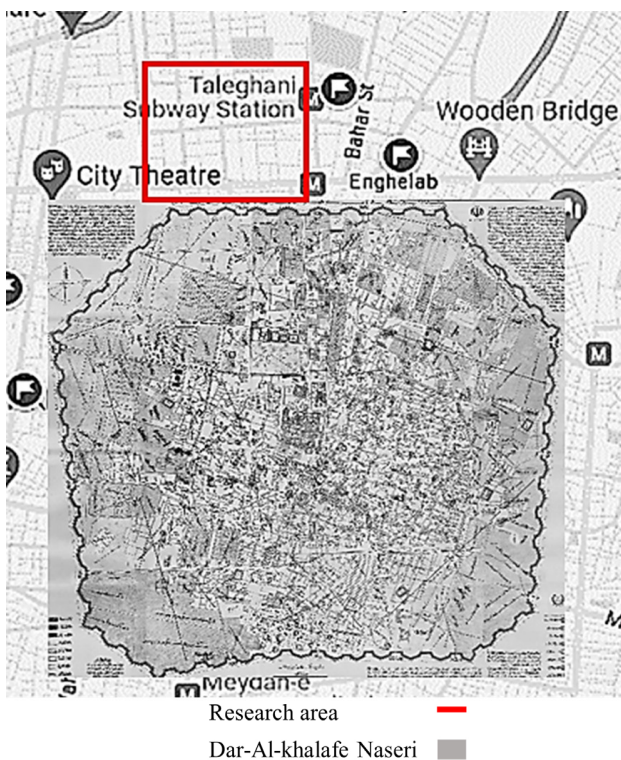


Fig. 2. Research area. Source: Authors.

the manifestation of the mutual relationships between the concepts that shape the dwelling to respond to the research question concerning liminality properties. Finally, the authors selected and thoroughly examined seven buildings within the scope of the research, drawing the conclusions demonstrated as follows.

Results And Discussion

• The contexts, factors, and manifestations of liminality change in Pahlavi-era architecture

The onset of the Pahlavi era exposed Iranian society and Tehran as the capital of the country to massive changes in political-military, administrative, cultural, and educational aspects (Rajabi, 1976, 109). During this era, measures such as the establishment of the municipality, destruction of entrance gates, widening of older buildings, establishment of new grid networks, and drawing boundaries between land uses altered liminality (Habibi et al., 2010, 96). Moreover, the increased per capita government-owned raids, new constructions laws, specialization of architecture, and the change in architecture education style provided further grounds for liminality to change (Janipour, 2000, 231).

In this regard, the relationship between inside and outside transformed due to factors such as the altered hierarchy of entering the building (Yazdian, 2021, 155), reduced diversity in entrance placement, altered relationships of internal spaces, and different concepts of open and semi-open spaces, openings and facades that, in turn, altered liminality in architecture (Ghasemi et al., 2023, 7). The following discusses the position of liminality in the villa houses of Tehran considering the abovementioned.

• The position of liminality in the architecture of Pahlavi-era villa houses in Tehran

The assessments made in terms of the position of liminality in the present work focused on the buildings introduced in Table 3. The position of liminality has been studied based on spatial liminality properties in architecture within the three arenas of the selected houses as follows. Said arenas reflect a process of passage from the initial arena (including entrances and building accessibilities, external spaces, and facades), to the intermediary area (encompassing the entrance to internal spaces), and the continuity area (encompassing internal spaces).

• **Investigating liminality properties in the studied houses from the first (1925-1941)² and second (1941-1978)³ eras**

This section examines liminality properties in a sample of villa houses in Tehran in two main classes of hierarchy, articulation, openness, and permeability; and robustness, diversity, and dynamism as follows.

- **Hierarchy, articulation, openness, and permeability**
A. First Pahlavi era, House No. 1

Hierarchy: In this building, the space between the indoors and outdoors has incorporated a distinct gate on the western/public entrance that differs from the rest of the façade in terms of height and brickwork. Accessing the courtyard indicates the dominance of abruptness and openness over closedness. The facades are linked to the passage and feature multiple openings that exhibit a new manner of relationship between the inside and outside of the building through diverse openings (Fig. 3). Consequently, the interplay between identity and communality has transformed when compared to traditional houses with a central plan. The passage space in entrance from the courtyard has been defined through a hierarchy of the courtyard, entrance gate to the internal place, and entrance hall (Fig. 4). On the other hand, the entrance vestibule placed along the entrance hall combined with the upward staircase and utility corridor provides passage to the entrance space from the south (Fig. 5). In terms of connectivity, access to the personal spaces has been defined more directly through the southern entrance connected to the upward staircase and utility corridor. However, the western entrance from the courtyard is more directly connected to the ground-level collective spaces. The privateness or publicness of access to the internal spaces has thus been defined in line with their respective level of privateness (Fig. 6). Meanwhile, the connection between rooms and division spaces has been reduced to gates, resulting in abruptness at the moment of entry. Moreover, the similarity of the doors to the rooms has reduced legibility in the space.

Table 3. Introduction of the studied buildings. Source: Authors.

Era	Building	Location
First Pahlavi	House No. 1	Kandovan alley, Enqelab St.
	House No. 2	Shirin Alley, Hafez St.
	House No. 3	Iranshahr St., Enqelab St.
Second Pahlavi	House No. 4	Arak alley, Villa St.
	House No. 5	6th alley, Villa St.
	House No. 6	Karimi Alley, Enqelab St.
	House No. 7	Jamileh Sheykhi Alley, Iranshahr St.



Fig. 3. House No. 1, Western entrance. Source: Authors archive.



Fig. 4. Levels of passage from the outside to the inside from the west in the house No. 1. Source: Authors.



Fig. 5. Levels of passage from the outside to the inside from the south in the house No. 1. Source: Authors.

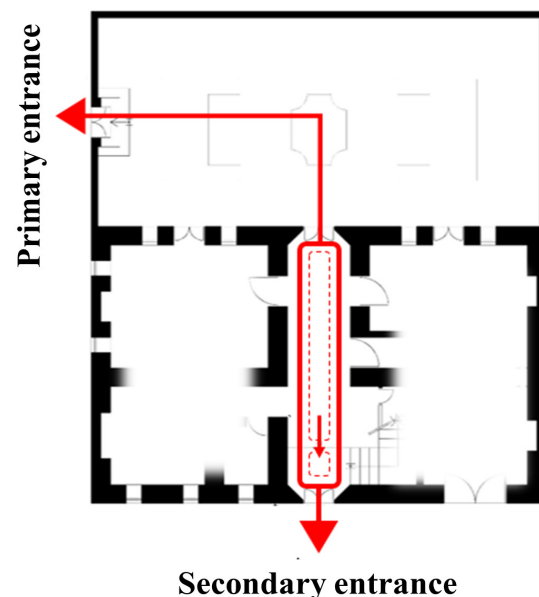


Fig. 6. Articulation in house No. 1. Source: Authors.

Articulation: In the definition of the connection between the entrances and the passage, separation from the outside prevails over the connection with given the passage and the inside of the building, resulting in abruptness in the entrance. Privacy in the courtyard thus relies on the door to be closed. Moreover, the connection between the building and its proximity has made for the dominance of openness over closedness within the area of openings and terraces. In the intermediate arena, the in-between space establishes a ceaseless link between the two distinct western and southern entrances through the hall's articulation, forming the most significant arena of the building in terms of articulation (Fig. 7). Turning to the internal sub-spaces, the functional diversity of the arenas provides the necessary distinction and continuity required for private dwelling. Meanwhile, overlooking articulation at room entrances based on hierarchy has restricted the role of liminality in visualizing the concept of privacy in line with personal spaces.

Openness and permeability: In the initial arena, the openness created through the gate leading to the vestibule and entrance staircase has made for the dominance of outdoors over indoors in southern and western entrances, respectively, as the entirety of the indoor space is exposed upon entry (Fig. 6). On the other hand, the entirety of the building is permeable given the two primary/public and secondary/private entrances opening to secondary passages. We observed the dominance of openness over closedness and perspective within the area of courtyard and façade thanks to the immediate connection with the outdoors resulting from the building's placement on the plot (Fig. 3). Turning to the internal spaces' entrance arena, the highest permeability and openness in the design of the building were observed due to the articulation of the entrance hall between the two entrances (Fig. 7) as indoors and outdoors form the space separate from the outside albeit open to it. In the final arena, vision from the openings has restricted openness from various aspects in the proximity of the passages although all rooms (through glass doors and separating doorframes) can be extended and combined (Figs. 3 & 6).

B. First Pahlavi era, House No. 2

Hierarchy: In the hierarchy of entering the building, limen has been reduced to a gate, resulting in the dominance of openness over closedness in terms of mutual spatial relations given the abrupt entrance to the courtyard. Moreover, the visibility of the upper façade from the outside reflects the mutual relations between identity and communality (Fig. 8). In the innermost layer, a small landing is all that mixes the activities of entering and leaving the first floor and the stairs of the upper floor around the gate (Fig. 9). Therefore, this space has been reduced in terms of ability to become a furnished space for entry and exit in line with the expression of social interactions. In terms of continuity, the hierarchy is designed through a partitioned space, determining the difference in the location of the utility spaces in the northern corridor, the staircase of the floors, and the collective territory of the house adjacent to the ground floor. On the other hand, the reduction of room entrances to doors has resulted in abruptness upon entry (Fig. 10).

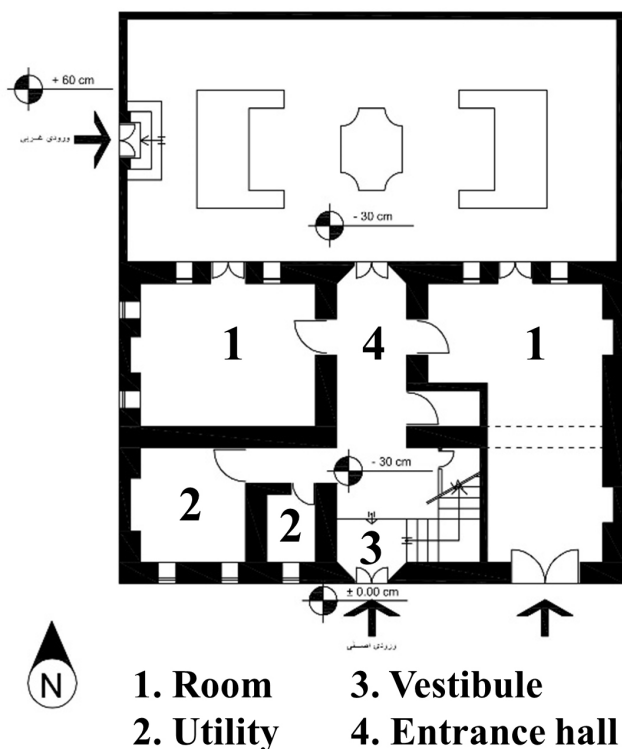


Fig. 7. Ground floor plan (1/250) of house No. 1. Source: Authors.



Fig. 8. Overall view of the house No. 2. Source: Authors archive.

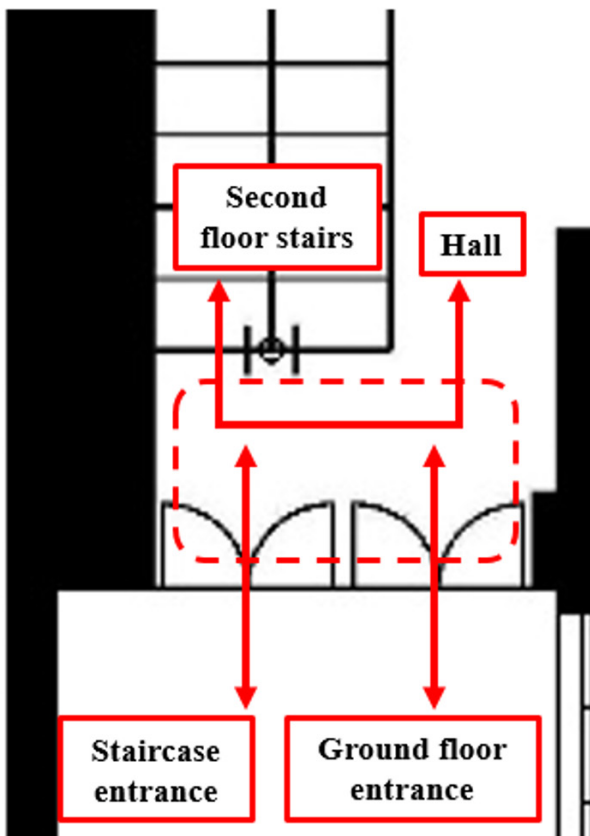


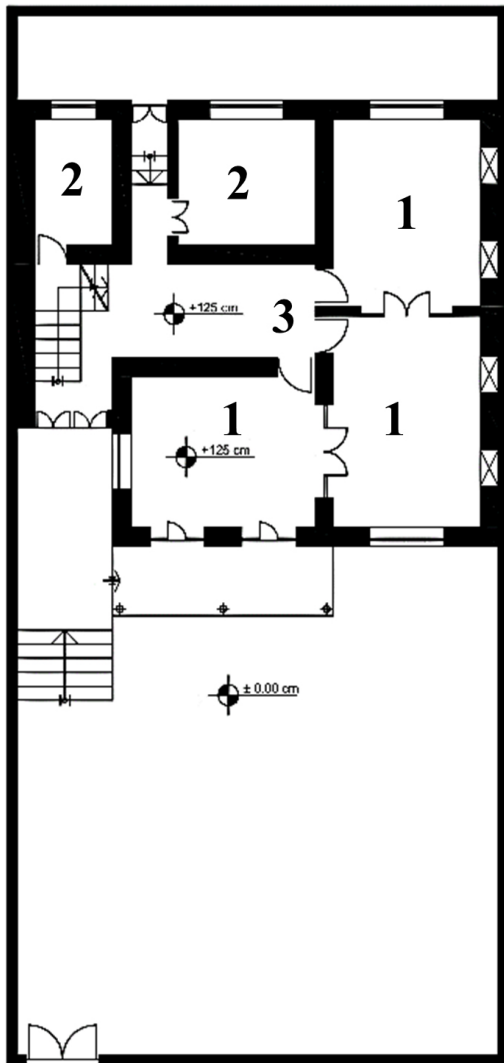
Fig. 9. Mixed activities at the entrance of the house No. 2. Source: Authors.

Articulation: Based on the defined hierarchy, we observed the dominance of separation over a connection in the building entrance. The decorations on the south facade establish a connection between the indoors and outdoors by showcasing the social aspect of the dwelling. After crossing the courtyard serving as a link between interior and exterior spaces, articulation in the entrance area is associated with enhancing perceptual awareness. This is achieved through alterations in lighting, temperature, floor surface, and the sense of openness created by the openings in the side spaces. Furthermore, in terms of continuity, the entrance hall contributes to articulation in the entirety of the building through the staircase (Fig. 10).

Openness and permeability: We observed an overall dominance of the outside over the inside and the resulting perspectives in the initial arena based on hierarchy. The courtyard serves to reflect the openness and closedness in relation to the entrance given its depth and placement of the entrance in its south-western corner. In the entrance to internal spaces on the ground floor, the openness of the space to the outside relies on the building's entrance door to be open (Fig. 10). On the other hand, the openings of the adjacent spaces have resulted in openness by providing light and vision tailored to private spaces. In the internal spaces, the ability to extend and combine the rooms has led to permeability and openness (Fig. 11) although said spaces are exposed to the vision from the southern openings.

C. First Pahlavi era, House No. 3

Hierarchy: Access to the building is provided through the main street, Secondary Street, and the sidewalk. In this arena, entry to the building starts with the gate made distinct from the wall through a change in its height and continues with entrance to the courtyard (the other (main) part of the courtyard lies in the southern area of the building and has been made distinct from the entrance through stairs). In the middle courtyard, the main entrance to the interior spaces has been created by passing through the stairs and the door connected to the corridor (Fig. 12). This entrance serves as a space for



1. Room 3. Entrance hall
2. Utility

Fig. 10. Ground floor plan (1/250) of house No. 2. Source: Authors.

preparation and delay, as well as a representation of the collective identity of the residents through objects and elements when entering and exiting the space. This, in turn, forms the spatial and social dimensions, aligning with the appropriation of the dwelling space. In the next layer, other entrance doors and staircases are placed near the corridor, in line with the level of privacy required for each space. Finally, the utility spaces are located adjacent to the private (secondary) entrance, allowing direct access for the residents to the private layer of the building (Fig. 13).

Articulation: We observed the dominance of separation over connection in the initial arena since the pre-entrance has been reduced to a gate. As one

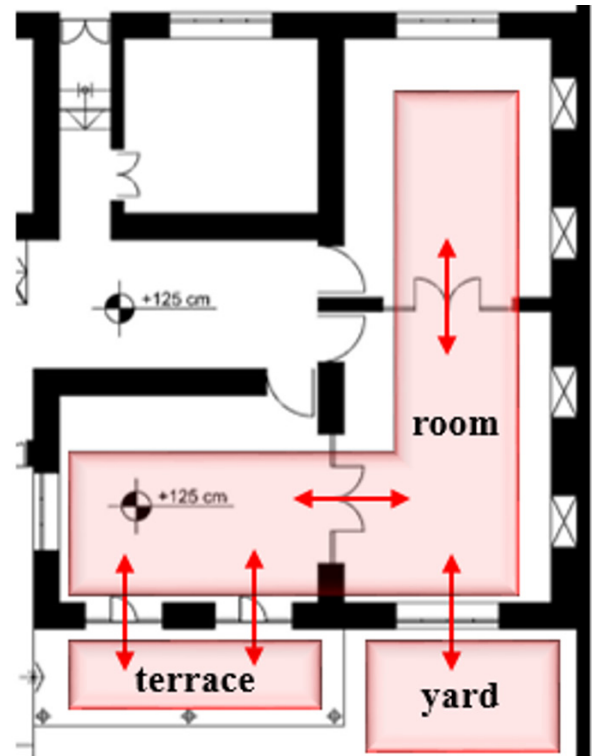


Fig. 11. Spatial combination & extension in the house No. 2. Source: Authors.



Fig. 12. Internal space entrance of House No. 3. Source: Authors archive.

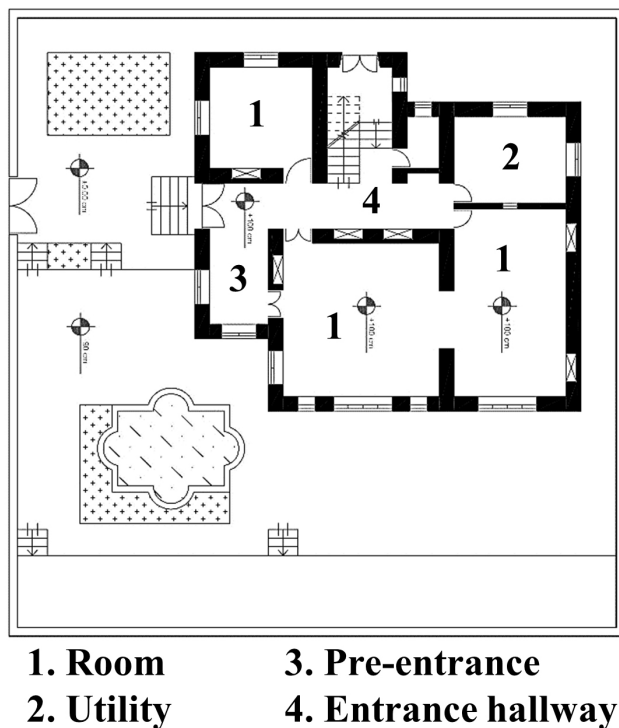


Fig. 13. Ground floor plan of the House No. 3. Source: Authors.

moves forward, the allocation of a specific part of the courtyard as the intermediary space between the building entrance and entrance to the internal space (and basement and inside in the southern and northern parts of the courtyard, respectively) reveals the articulation of space through the passage from the stairs and entering the hall. This would mean that this hallway has connected a diverse set of sub-spaces in the internal entirety to the external entirety (the courtyard) akin to a joint (Figs. 13 & 14).

Openness and permeability: In the internal and intermediary arenas, a manifestation of the spatial aspect/openness relies on the closedness of the door given the design of the building entrance and entrance to spaces being located along one another (Fig. 15). On the other hand, placement of the two primary and secondary entrances to the internal spaces increase the permeability of the building. In the arena of internal spaces, all parts of the spaces open to the courtyard (Fig. 13) through an opening in line with the openness and permeability resulting from the entrance corridor’s articulation, but are generally exposed to visual exposure.

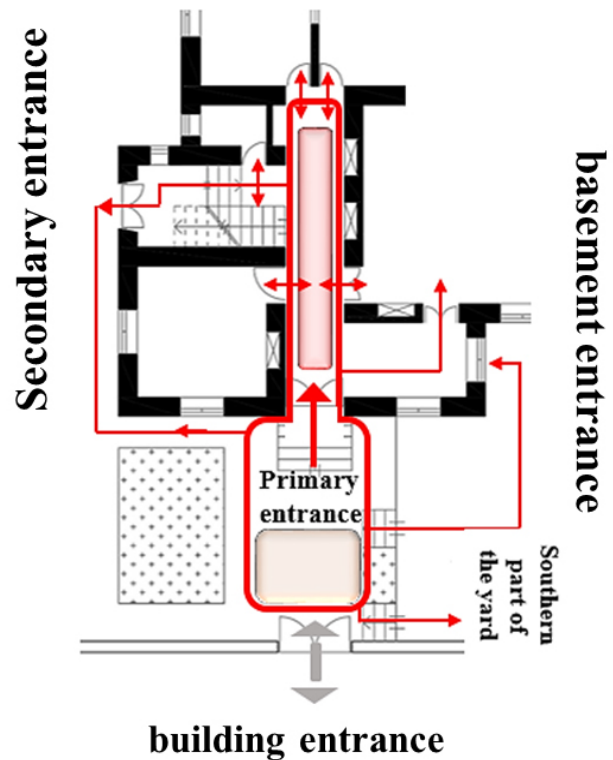


Fig. 14. Articulation in House No. 3. Source: Authors.

D. Second Pahlavi era, House No. 4

Hierarchy: In the initial arena located at the southern entrance, the entrance to the courtyard occurs abruptly through the entrance to the internal spaces considering the sidewalk and gate as a boundary between the yard and the passage (Figs. 16 & 17). Liminality in the northern entrance has been defined through passage from the dead-end alley and gate to the northern backyard. The southern courtyard is beautifully landscaped. The upper part of the facades is visible from the outside, establishing a sense of identity and commonality. Within the southern entrance space, the passage towards the entrance is defined by steps and stairs, in conjunction with the terrace extending around the building. This passage persists as it through the corridor containing the staircase, extending towards the separation area. This area of separation is linked to the corridor leading to the backyard in the northern entrance section (Fig. 18) from its northern side. This sequence of movement gives meaning to the entrance from both directions, serving as a limen. Within the interior spaces, the ground floor area and



Fig. 15. The connection between two entrances in House No. 3. Source: Authors archive.

the accompanying staircase up to the upper corridor define the entry-level. The connection between the dividing space and the sub-spaces is limited to a doorway, resulting in abrupt entrance to said spaces (Fig. 16).

Articulation: According to the hierarchy, articulation has gone overlooked in the entrances communicating with the outside. In the internal area, the southern courtyard and northern backyard

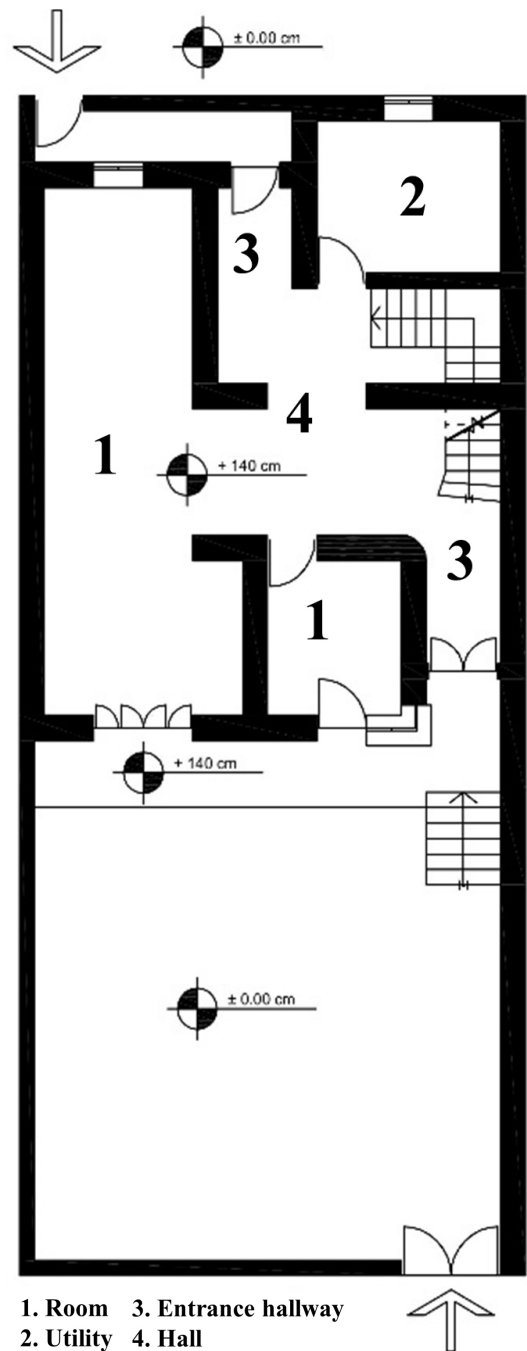


Fig. 16. Ground floor plan (1/250) of the House No. 4. Source: Authors.

served as joints, creating the concept and elements carrying the sense of a smooth transition and harmony through form. The central space on the ground floor serving as a link between the two separate entrances is the focal point in the entrance of the internal spaces (Fig. 17). This area has created a sense of balance and harmony among the surrounding subspaces in conjunction with the staircase. On the other hand, overlooking

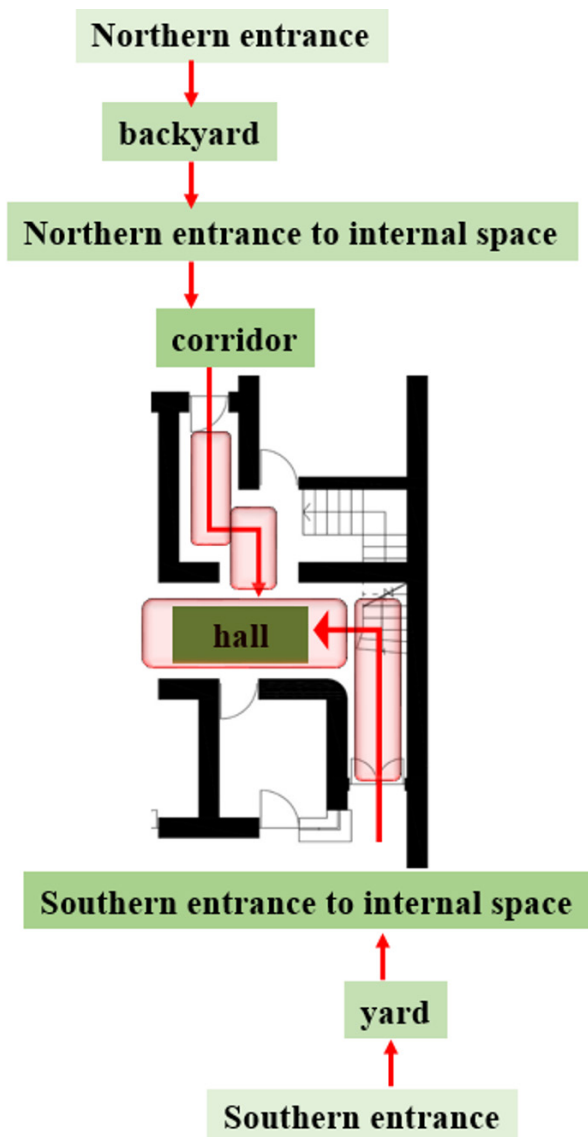


Fig. 17. Level of passage and articulation in House No. 4. Source: Authors.



Fig. 18. Overall view of the House No. 4. Source: Authors archive.

articulation that has resulted from the narrow entrance of the rooms to the doorway, has led to the abruptness and reliance of interior privacy on the door being shut. It is important to mention that the semi-open spaces in the building serve as a connector for the adjoining rooms (Fig. 19).

Openness and permeability: Defining two separate entrances has contributed to the building’s permeability in the initial area. On the other hand, the building’s openness remains under the influence of separation’s dominance over the connection in the southern entrance, while in the northern entrance openness-closedness has been established correctly based on the hierarchy. The quality of openness in the façade and courtyard has exposed these areas to visual exposure given the building’s placement in the plot and the height of the walls, limiting the function of these spaces and spaces in their adjacency. The entrance to the building establishes the relationship between the indoors and outdoors according to hierarchy and articulation, manifesting both identity and commonality. In the final arena, openness has been established through the open and permeable centrality of the entrance hall. Moreover, the semi-open spaces have also added to spatial permeability considering the linking role they play between the rooms (Figs. 17 & 19).

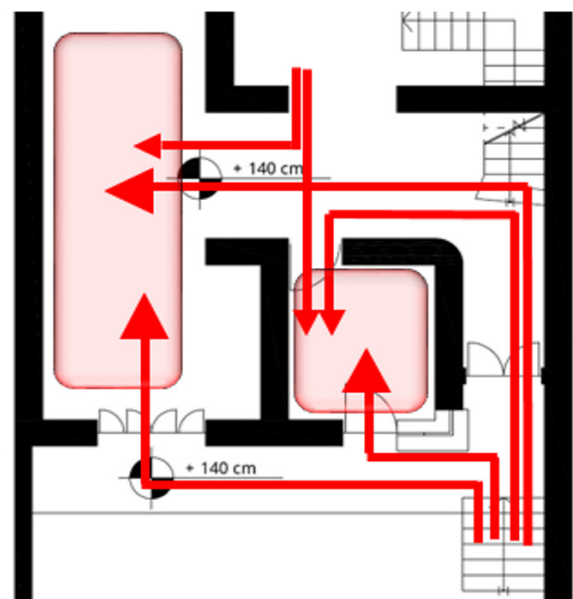


Fig. 19. Permeability of rooms in House No. 4. Source: Authors.

E. Second Pahlavi era, House No. 5

Hierarchy: The separation area in the accessibility aspect of this building encompasses graded passages providing the grounds for transition. The passage space in the courtyard entrance has been reduced to a doorway, resulting in an abrupt entrance into the space. The courtyard has been landscaped, containing a pedestrian pathway to the indoor space, parking space, a pool, and garden in the south; eastern and western pathways; and a backyard and access to utility, hygiene, and facilities in the basement in the north (Fig. 20). The upper part of the façade is visible from the alley, serving as a significant component of the manifestation of dwelling’s social aspect. On the south, the entrance space to the inside is the transitional space from the courtyard’s doorway to the rear frame of the entrance hall door (Figs. 20 & 21). This visually unobstructed area aligns with the courtyard entrance door and serves as a seamless extension of the continuous journey inside. On the other hand, the entrance to the interior space occurs through a corridor on the north. The internal areas of transition in the final area are defined by the ground floor entrance hall and the levels above, while the arrangement of the adjacent spaces is determined by the size of the entrances, corridors, and stairs. The combination of these creates the transition space, forming the transitional space within the three layers extending from the outside to the inside (Fig. 20).

Articulation: In the courtyard entrance, separation prevails over connection as no pre-entrance has been defined. The courtyard links the inside and outside of the entire building. The upper parts of the façade connect it to its proximity by manifesting the spatial and social aspects on the outside (Fig. 21). In the intermediary area, the distinct and fluid space of the entrance serves as a link connecting the two southern and northern entrance through a corridor and resulting in the articulation of collective/public and personal/private arenas (Fig. 22).

Openness and permeability: In the initial arena, openness has been created at the minimal state of a doorway at entrances. The courtyard caters to the openness of the internal spaces but remains exposed to visual exposure. In terms of the façade, the openings serve as spaces to linger and hold objects, while the terrace and rooftop contribute to the openness of the internal spaces toward each other and nature (Fig. 21). In the entrance area to internal spaces, openness, and permeability have been established through the entrance hall given the building’s placement and the scaled connection between various areas (through the size of the entrance and corridors). Within the internal spaces, the entirety of the space has been opened to the outside through the openings that are, in turn, affected by the visual exposure (Fig. 20).

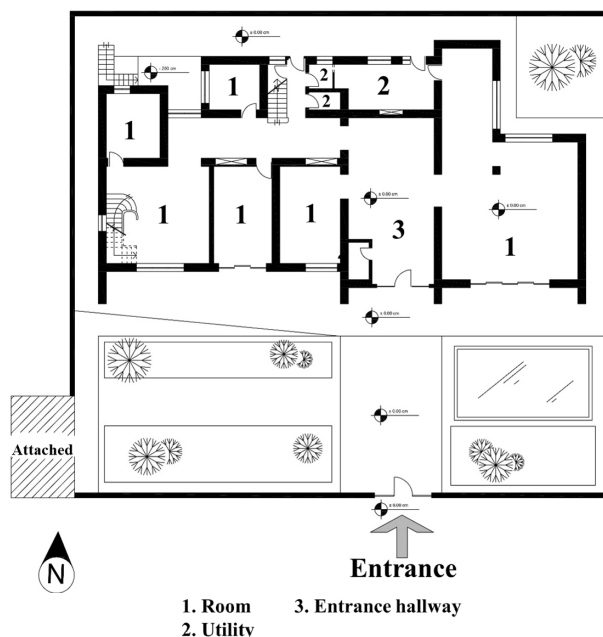


Fig. 20. Ground floor plan (1/250) of the House No. 5. Source: Authors.



Fig. 21. Overall view of the House No. 5. Source: Authors archive.

F. Second Pahlavi era, House No. 6

Hierarchy: Primary/western and secondary/eastern accessibility pathways encompass scaled passages. Pedestrian and automobile entrances are distinct at the primary gate. A resting space has been considered in the pedestrian portion of the gate after the gateway, which extends to a staircase leading to the interior space (Figs. 23 & 24). Access to the southern and northern portions of the courtyard is provided on the two sides of this resting space. At the secondary entrance, we observed a sense of spatial compression and confusion in navigation across the northern and southern courtyards and the staircase leading inside due to the absence of a resting space. The courtyard has been landscaped around the pathways and the building using natural and manmade elements and supporting spaces corresponding to the function of internal spaces (Fig. 23). The upper side of the façade contributes to the social aspect of the dwelling given its openness to the outside.

The entrance from the west encompasses a passage from the external staircase, the enclosed landing, a doorway, and a wide internal staircase providing direct access to the entrance hall. This space houses a closet and entrance to the dining room adjoined to the kitchen on its south and north, respectively (Fig. 24). This spatial complex facilitates the establishment of mutual relations of identity and community through various factors such as space form, elements, size, materials, and furniture, culminating in the entrance hall. On the other hand, the entry-level from the east encompasses an outer staircase and a corridor leading to the entrance hall. In terms of continuity, levels are created by the entrance hall in conjunction with the circular staircase connecting the floors. The connection of the entrance hall to the sub-spaces has been reduced to similar doorways, which has undermined legibility. The dining room is positioned between the entrance hall and the kitchen, whose function comes together since its other point of access opens to the entrance staircase (Fig. 23).

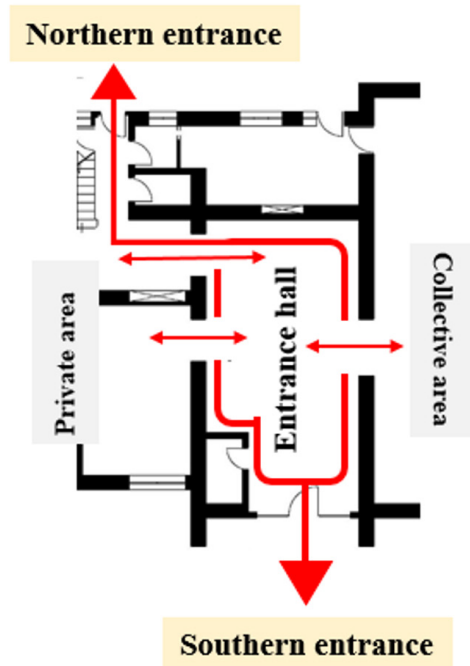


Fig. 22. Articulation in House No. 5. Source: Authors.

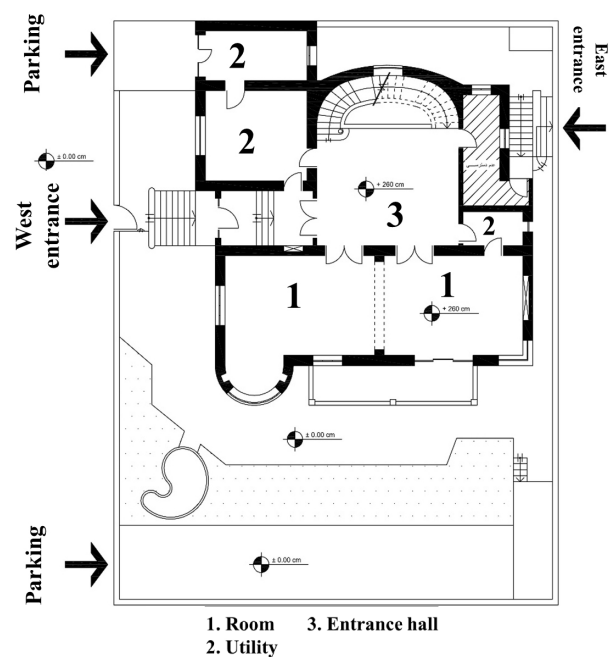


Fig. 23. Ground floor plan (1/250) of the House No. 6. Source: Authors.

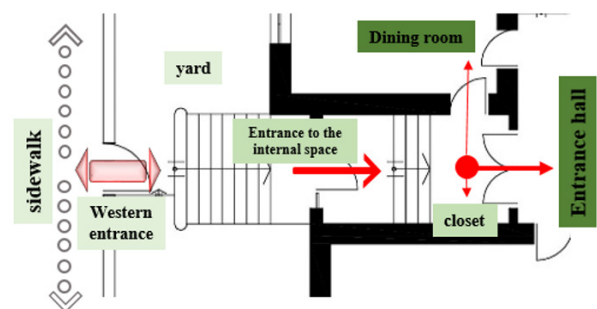


Fig. 24. Levels of passage from the west in House No. 6. Source: Authors.

Articulation: In the exterior part of the western entrance, we observed the dominance of separation over connection, resulting in confusion in terms of pauses/lingering before the entrance for pedestrians. In the interior area, the entrance staircase to the first floor serves as a joint. Given the position of the building within the plot, the courtyard links the building and the outside world on all four sides. This bond has been established in the façade through the building’s form and openings positioned on the upper parts of the façade (Figs. 23 & 25) .

Articulation at the western entrance has formed along the courtyard entrance through the change in the floor level, staircase, covered doorway, the change in light and temperature, and the gradual enclosure provided through the fences and the change in materials. On the eastern entrance, entrance stairs connect immediately to the wall in front of them, lacking a sense of continuation (Fig. 23). In terms of the interior spaces, the entrance hall serves as a joint bringing the whole structure together in conjunction with the staircase (Fig. 26). The entrance to the rooms has been reduced to similar doorways, playing a role of mere separators. On the other hand, the semi-open space connects the rooms in its adjacency through its location and openings (Fig. 23).

Openness and permeability: The definition of two separate entrance zones on opposite sides has led to permeability due to their connection in the initial area. The courtyard and facades are open on all four sides and are thus exposed to visual exposure. The visual exposure, however, has recently been moderated by tall trees in the courtyard, which has restricted the function of the terrace to storage, greenhouses, and drying clothes. In the intermediate and connecting spaces, the articulation of entrances and the variety of relationships between the sub-spaces cater to permeability (Figs. 23 & 26). Meanwhile, the visual exposure still limits the openness of the rooms.

G. Second Pahlavi era, House No. 7

Hierarchy: Entrance to the building is provided by passage through scaled pathways and a doorway placed between the courtyard and the alley. Then, the entrance stairs (emitting a welcoming atmosphere due to their form and placement at the central axis of the form) -in connection with the terrace while distinct from it thanks to a column- form the entrance to the interior spaces as one passes the courtyard (Figs. 27 & 28). The process of passage continues as one passes the doorway and enters the entrance corridor leading to the central hall. These spaces play a significant part in manifesting the mutual relationships of dwelling through the elements and objects they bring together. The entrance hall has regulated the collective/public to individual/persona level of the reals so that it houses the large room/guest space (distinguished by the size of the door) on its west (adjacent to the entrance and accessed from the terrace), the entrance to the small/private



Figure 25. Overall view of the House No. 6. Source: Authors archive.

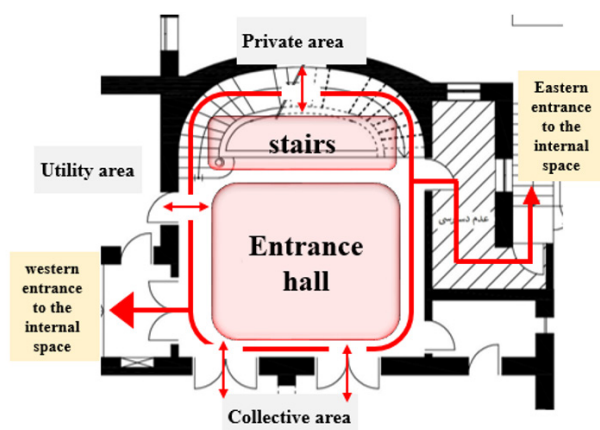


Fig. 26. Articulation in House No. 6. Source: Authors.

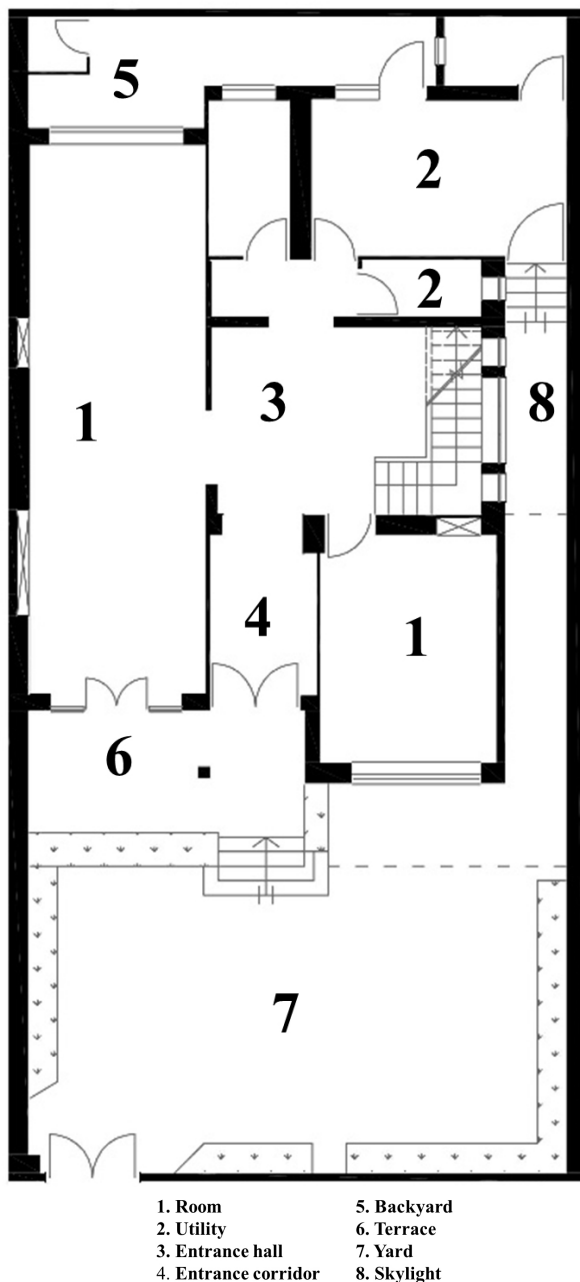


Fig. 27. Ground floor plan (1/250) of the House No. 7. Source: Authors.

room on its south, the stairs to the more private upper and basement floors on the east, and the utility area accessed through a corridor on its north (Figs. 27 & 29).

Articulation: We observed an overall dominance of separation over the connection in the external area of the building entrance based on hierarchy. In the internal area, the courtyard has managed to establish a bond between the interior and exterior spaces of the building. In the internal area, the courtyard has

established the link between the inside and outside of the building. Articulation in the intermediate area along this space starts from the entrance staircase and manifests in the entrance through a corridor. This hall has connected all spaces in vertical and horizontal directions through the staircase it encompasses. At the next level, the semi-open space serves as a means of articulation, connecting the entrance and the guest room (Figs. 27 & 30).

Openness and permeability: The openness and permeability required for the formation of privacy in the courtyard and interior spaces (as levels of interiority) have been established through the placement of the entrance at the southwestern corner. In terms of the internal spaces, the entrance hall has created openness and permeability in the interior space through its articulation. This space has been opened to skylight through openings on its eastern side (Fig. 31). The quality is formed in the southern section through the window in the compact chamber and the entrance leading to the terrace in the guest room, extending the indoor space towards the courtyard (under restrictions imposed by visual exposure). Furthermore, all the utility areas and the guest room are open to the northern backyard (Fig. 27).

- Robustness, diversity, and dynamism

A. First Pahlavi era, House No. 1

Robustness and diversity: The western entrance space allows for variation in details; however, the southern entrance vestibule can be furnished in line with the entrance and exit traditions to demonstrate the social aspect of the dwelling. The courtyard accommodates diverse activities corresponding to the residents' lifestyle. The terrace has restricted usage due to its compact size, no protective wall, and visual exposure to passersby (Fig. 32). The interior spaces are multi-functional and can be combined and extended to respond to varying activities and requirements of the residents.

Dynamism: Dynamism in the western entrance space relies on the elements and atmosphere of the courtyard. In the western entrance, the vestibule



Fig. 28. Internal space entrance of House No. 7. Source: Authors archive.

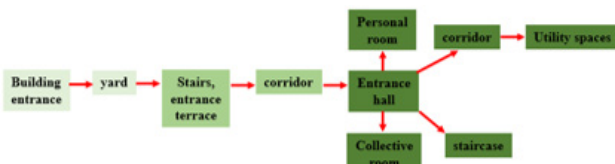


Fig. 29. Levels of passage in House No. 7. Source: Authors.

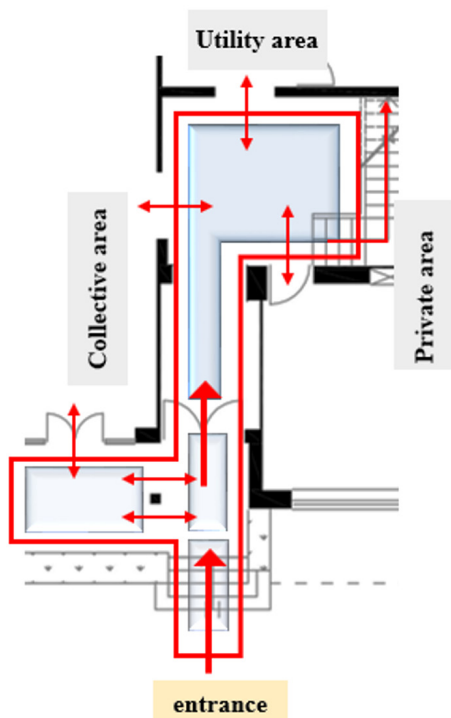


Fig. 30. Articulation in House No. 7. Source: Authors.

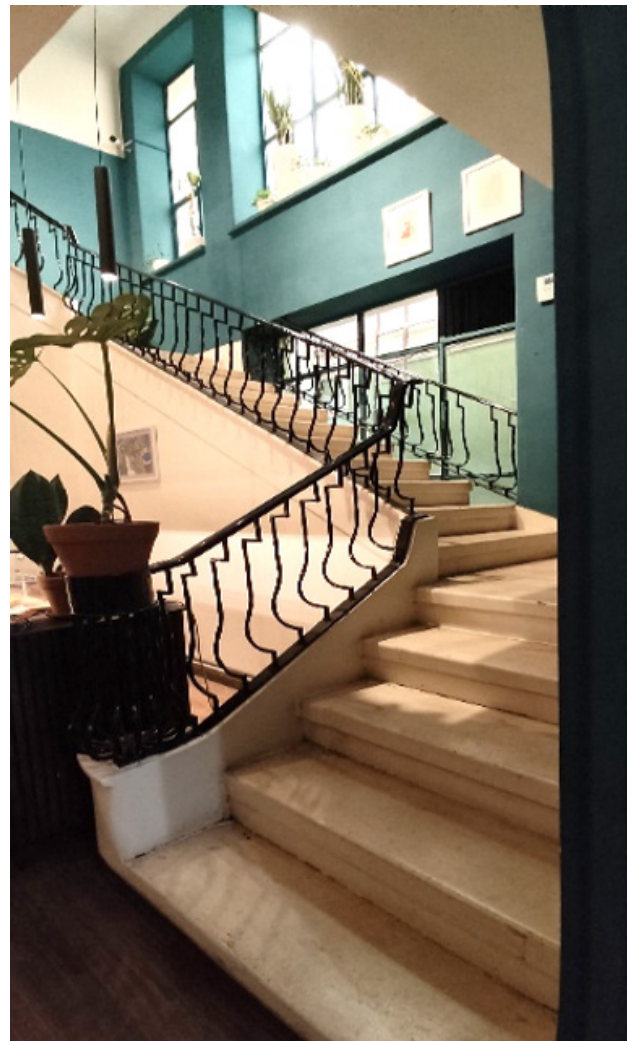


Fig. 31. Openness & dynamism of entrance hall in the House No. 7. Source: Authors archive.



Fig. 32. Northern facade in House No. 1. Source: Authors archive.

appears more dynamic as it incorporates several alternatives of paths to take, robustness in terms of variation in details, and variations in terms of light, temperature, and ground level compared to the entrance hall (Fig. 32). Turning to the internal spaces, the multiplicity and diversity of the interior spaces and their bonds with each other and the exterior space have contributed to dynamism (Fig.7).

B. First Pahlavi era, House No. 2

Robustness and diversity: The initial area allows for individualism through change in details. The courtyard exhibits the opportunity for varied functions and activities corresponding to inhabitants' lifestyles and habits. The terrace on the upper floors can be furnished as a place to sit and linger. The intermediate area also allows for individualism through change in details. Robustness and diversity in internal spaces have been established through the capacity to merge and extend the rooms (Fig. 10) and their multi-functionality. Variations can be observed in terms of details and land use.

Dynamism: Dynamism in the initial area relies on the diverse quality of the courtyard (natural and manmade elements coming together) and rhythm, depth, and diversity in materials, openings, and façade ornaments. In the entrance area opening to various floors, the elements and objects in the entrance staircase and the openings on the walls have catered to dynamism (Fig. 8). In the case of internal space, dynamism depends on openness and permeability as well as the diversity and multiplicity of spatial relations (Fig. 11).

C. First Pahlavi era, House No. 3

Robustness and diversity: All the areas exhibit the possibility for the manifestation of appropriation processes through change in details. The courtyard, specifically, demonstrates a remarkable capability to adapt and change in response to the private or collective activities of the residents or connect with supporting space thanks to its vastness and form on the four sides of the building. This indicates the attention to the imperativeness of diversity and open spaces as well as closed spaces in the residential area. In this regard, internal spaces have also catered to diversity and robustness at the land-use scale through the ability to extend and merge.

Dynamism: Diversity in the courtyard in terms of the elements in the entrance space across the entirety of the façade makes itself distinct in the initial and intermediate areas through windows, terraces, and the varied brickwork (Fig. 33), resulting in dynamism.



Fig. 33. Overall view of the House No. 3. Source: Authors archive.

This quality in this area is the result of a diverse set of relations between functions, elements, and objects in the space as well as the residents. In the case of internal areas, dynamism relies on the multiplicity and diversity of the spaces, their relations to one another and the entrances, and openings to the outside in various directions (Fig. 13).

D. Second Pahlavi era, House No. 4

Robustness and diversity: Personalization has been made possible by customization in all areas. The courtyard can serve multiple purposes and be modified to suit the residents' lifestyles. Similarly, the terrace can be. However, the spaces remain restricted due to visual exposure. On the contrary, the ability to expand and merge spaces enhances the overall favorability of the building in terms of robustness.

Dynamism: Dynamism in the initial area on the south relies on the courtyard, while the northern part of the yard provides it through spatial diversity. The courtyard's dynamism is a result of its varied components, while the facade exhibits movement through the diversity of form, volume, and empty spaces in the plan. The entrance section manifests dynamism with its varying sizes, materials, and changes in light and darkness upon entry (Fig. 18). Moreover, factors such as the entrance hall area, the ability to merge the rooms, the multiplicity of the sub-spaces and their connection to the hall, and the openness of the spaces have also contributed to dynamism in the internal space (Figs. 16 & 19).

E. Second Pahlavi era, House No. 5

Robustness and diversity: Besides the customization ability in all areas, the multifunctionality and diversity of the spaces including open, semi-open, and closed spaces have added to diversity and robustness. This has also allowed for general changes such as land-use change, especially thanks to the building's vastness which allows for the addition of supporting spaces (Fig. 20).

Dynamism: The alteration of passages and the elements within the courtyard have ensured dynamism in the initial area. The diversity within the courtyard has also contributed to dynamism in this area. The varying levels of form, diversity in the materials, the presence of vegetation, the interplay between trees and buildings, and the combination of glass and stone have all catered to this dynamism as well. The entrance space incorporates this quality through the combination of the courtyard open passage, the covered porch area, the doorway, and the entrance hall. These elements, along with the change in materials, lighting, and temperature, create a sense of dynamism (Figs. 21 & 34). Dynamism in internal spaces has been achieved through the multitude, diversity, and permeability of spatial types, the combination of materials, and the degree of openness to the courtyard (Fig. 20).



Fig. 34. Entrance to internal space in the House No. 5. Source: Authors archive.

F. Second Pahlavi era, House No. 6

Robustness and diversity: The courtyard has specifically added to spatial diversity seeking to establish and maintain quality and customization through the variation of details in various spaces. This level of diversity has been achieved as the yard allows for various personal and collective activities such as playing, gardening, attending to pets, and the addition of utility services. The internal spaces have also added to the robustness of the building given their ability to merge and extend as well as their multiplicity (Fig. 23).

Dynamism: Dynamism in the initial area is the result of diverse accessibility, diversity in the courtyard in terms of activities, their soft boundaries, and manmade elements, and the integration of the building's form with the boundaries of the open space. Facades have also catered to dynamism through the combination of arched and flat elements and diversity in openings, terraces, and stairs. In the internal spaces, dynamism has been ensured by the spatial diversity resulting from the articulation of the respective spaces. In terms of continuity, dynamism has resulted from the combination of the entrance hall with varied staircases, diverse sub-spaces, their form, and their openness created by openings and terraces facing the courtyard in various directions (Figs. 23 & 25).

G. Second Pahlavi era, House No. 7

Robustness and diversity: The building has allowed for variation on a scale ranging from details to the entire building (land-use change) through typology and technology. In this regard, multi-functionality, the multiplicity of open, semi-open, and closed spaces, and diverse spatial relations allowing for variation in spatial elements that alter indoor-outdoor relationships have catered to the building's diversity and robustness (Fig. 27).

Dynamism: The combination of the open and semi-open spaces encompassing a quality of diversity in elements and functions has led to dynamism in the initial area. Consequently, the diversity of spatial relations and elements and the details of spaces are the most significant factors contributing to dynamism upon entry to the entrance hall and corridor (Figs. 27 & 31).

Conclusion

The present study sought to investigate the position of liminality in cases of villa houses in the northern area of Central Tehran constructed during the Pahlavi era based on the spatial properties derived from the liminality approach to dwelling. In this regard, the concept of liminality according to Norberg Schulz was employed to explore the spatial liminality properties to examine its position. The liminality properties derived from the essential position of liminality in the dwelling process

in the four modes of dwelling based on the dialectic between lingering and wandering revealed to be hierarchy, articulation nature, openness and permeability, robustness, diversity, and dynamism which were used as a basis to examine the position of liminality. The study then examined the initial/separation areas (access and entrance to the building, external spaces, facades), intermediate areas (entrances to the inside), and final/joining areas (internal spaces) in the studied buildings. This measure was taken considering the dominance of the desire for extroversion and a more direct connection with the outside and the reduced diversity of building placement in the plot. The results of the study revealed the position of liminality in the studied buildings based on the role and quality of liminality properties in various aspects of dwelling.

Results

The present research revealed the position of liminality in a sample of villa houses in northern areas of central Tehran constructed during the Pahlavi era, seeking to answer the research question. revealed that the most significant variations were observed in terms of "hierarchy", "Articulation", and "Openness" within the "entrance area of the structure", "entrance of the rooms", and "Exterior spaces". These variations have led to the domination of openness over closedness, detachment of connectedness, and abruptness as well as the weakening of privacy inside the room (and reduced legibility of the entrance hall in some cases). Meanwhile, collective areas near the main (public) entrance have mainly been positioned with a distinct entrance compared to other spaces in terms of the size of the door or doorway. In this regard, private areas have been positioned at the far end of the passage process at some distance from the main entrance (and near the private entrance if available) or on the higher floors. This has relatively attenuated the issue of reducing room entrances to doorways. Moreover, the combination of the entrance hall and staircase in the examined examples from the second Pahlavi era has resulted in a stronger articulation than the buildings from the first Pahlavi era. This architectural mechanism has resulted in a central passage space enhancing

hierarchy, articulation, and openness-closedness of the interior area in relation to the entrance. The semi-open spaces in the studied buildings from the second period have reinforced the articulation of rooms in buildings from the second era compared to the first era. Overall, these spaces are significant both in terms of quality and quantity despite the restrictions imposed by visual exposure and have enjoyed more robustness, diversity, and dynamism. Other spaces exhibit the same characteristics as well.

Table 4 demonstrates the results obtained regarding the factors involved in the visualization of the liminality components in various areas as well as the more deprived areas in studied cases. Overall,

results indicate the position of liminality in studied buildings by depicting the spatial (openness-closedness) and social (identity-communality) relations between the place and its inhabitants. In this regard, future research is recommended to adopt the same approach in examining housing complexes.

Conflict of Interest

Authors declare no conflict of interests in compiling the present work.

Endnotes

1. Specifically Arnold Van Gennepe and Victor Turner.
2. Based on Iranian architectural research references from the Pahlavi era.
3. Based on Iranian architectural research references from the Pahlavi era.

Table 4. The position of liminality in villa houses constructed in Tehran during the Pahlavi era. Source: Authors.

Era	Building	Factors involved in the formation of liminality components		Areas deprived of liminality components and responsible factors	
		Specific to the building	Common	Specific to the building	Common
First Pahlavi	House No. 1	Defining two entrances (primary and secondary) connected as a transitional space establishes articulation across the structure, perception of passage, and the opportunity for selective rather than chaotic activities upon entry from the south.	Scaled paths to access the building; the courtyard serving as a main factor in dynamism; manifestation of the societal aspect in the façade due to its openness to the outside; permeability of the rooms and the ability to merge and extend them; multifunctionality of the rooms; ability to change building details and land use; changeable courtyard landscaping for various activities, catering to robustness, diversity, and dynamism.	The dominance of abruptness and separation over the connection at the entrances of the building and rooms (besides reduced legibility in these spaces) due to overlooked hierarchy and articulation; overlooking diversity in the terrace.	The dominance of openness over closedness and restriction of visual exposure in all spaces due to overlooked hierarchy and articulation.
	House No. 2	Permeability of the entire space to the entrance hall's articulation, dynamism resulting from façade elements, diversity, and robustness in the terrace.		Overlooking hierarchy and articulation in the entrances of the building and rooms; interference of activities in the entrance to floors due to overlooked articulation.	
	House No. 3	Articulation in the entire space through the two primary and secondary entrances conjoined by the entrance corridor and a staircase, defining a pre-entrance space for the quest space and interior spaces (catering to the social aspect).		Dominance of separation over connection at the entrances of the building and rooms.	
Second Pahlavi	House No. 4	Defining two primary and secondary entrances as the articulation space and their connection from the inside as a scaled center in the form of an entrance hall, corridor, and staircase; defining the terrace as a joint between the rooms, resulting in robustness and diversity.		The dominance of abruptness and separation over the connection at the entrances of the building and rooms.	
	House No. 5	Landscaping the courtyard in line with building placement in the plot; defining a central transition space and placement of sub-spaces around it to ensure articulation through the transitional space between the two pedestrian entrances by combining the entrance hall and staircase in line with the social aspect; dynamism resulting from the form of the building to ensure articulation and openness in scaled and varied spaces.		The dominance of separation over connection and openness over closedness in the hierarchy of building entrances exacerbated by the arrangement of internal spaces along the entrance.	
	House No. 6	Defining pedestrian and automobile paths and entrances; landscaping the yard based on hierarchical design and articulation through the definition of a transitional space between the two pedestrian entrances by combining the entrance hall and staircase in line with the social aspects; the terrace serving as a joint connecting the adjacent rooms.		The dominance of separation over connection and openness over closedness due to overlooked articulation in defining the hierarchies of building and room entrances (besides reduced legibility in these areas)	
	House No. 7	The dynamic design of the hierarchy and articulation between various elements of the entrance to internal spaces in the process of passage from the open, semi-open, and closed space with the centrality of the entrance hall conjoined with the staircase; the terrace serving as a joint connecting the adjacent rooms and contributing to diversity.		The dominance of separation over the connection in the building entrance.	

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