

Original Research Article

Developing Design Approaches for Traditional Urban Guesthouses Based on
the Analysis of Physical Characteristics of Historic Houses in Rasht*Parisa Shahverdy¹, Seyedehmamak Salavatian^{2**}, Hossein Safari³

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Abstract

Problem statement: Eco-tourism resorts as basic infrastructures play a key role in achieving eco-tourism goals. Considering the potential of the city of Rasht, having strategies for designing eco-tourism resorts in this city seems essential. This expresses the importance of reviewing the architectural patterns of historic houses in Rasht as a reliable source for recognizing the ancient architectural patterns of the region to obtain design guidelines for eco-tourism resorts.

Research objective: This study aims to examine the physical characteristics of historic houses in Rasht and to achieve architectural solutions for the design of eco-tourism resorts.

Research method: This is a case study applied research employing a descriptive-analytical method. Moreover, this study is qualitative in nature, and the data collection was performed through comparison and interpretation. Fifteen samples of houses from the Qajar and Pahlavi eras were purposefully selected and surveyed through non-random sampling. Research data sources are based on library studies and field observations.

Conclusion: By examining the physical space of selected houses and analyzing factors such as mass and space, organizing the plan, semi-open space, facade, and vertical circulations and decorations, guidelines for designing and developing eco-tourism resorts in Rasht were obtained as follows: 1) Entrance directly or through the vestibule or covered passage; 2) Maximum occupancy level of 60%; 3) One or two-story buildings; 4) The building is surrounded by a courtyard on one, two and three sides and adjacent to the main passages the location of the building in accordance with the shape of the ground; 5) One to one and a half and one-to-three ratios in the plan; 6) The use of semi-open space; 7) The use of multiple windows and the decorations of the façade with brickwork, cement work, and lime work; 8) Interior decoration of parget, mirror work, mural, and porcelain; 9) Wooden doors and windows; 10) Hip roof.

Keywords: *Vernacular architecture, Physical characteristics, Historic houses of Rasht, Traditional guesthouse, Urban tourism.*

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Introduction

The tourism industry is one of the most important economic sectors in the world, which has grown in recent years. To the extent that many countries derive their economic and social benefits from tourism and use tourism revenues to develop their infrastructure (Eccles & Costa, 1996, 45). Although the development and expansion of the tourism industry have many benefits, they can have irreparable negative effects if neglected and mismanaged. Following the management of harmful issues and the prevention of crises caused by irresponsible tourism activities, attention was drawn to “sustainable tourism” in the 1960s by identifying the potential effects of mass tourism and the effects of tourism activities on the economy, environment, and culture of tourist areas and host areas. In the tourism industry, the sustainable tourism (ST) paradigm emerged as the only solution to save nature and man. In the development of sustainable tourism, three environmental, economic, and social indicators with emphasis on quality of life for the host community, tourist satisfaction, and protection of the environment and human and social resources are considered, whose mutual relations lead to the realization of sustainable tourism (Eftekhary & Ghaderi, 2002). Indigenous identities and structures in the field of tourism are among the main topics in the concepts of sustainable tourism development leading to the formation of the eco-tourism phenomenon. Weaver (2001) points out that the goals of eco-tourism are environmental protection and education in line with the natural and cultural environment, which effectively assists in protecting tourism destinations and the host community. In recent years, eco-tourism has been one of the most important sectors of the tourism industry and in many countries and geographical areas, it is a source for the development of entrepreneurial activities, income generation, job creation, private sector growth, and the development of infrastructure (Lee, 2011, 413). Iran also has excellent potential in this field and the phenomenon of eco-tourism has been

discussed concerning its great potential for about two decades. Achieving eco-tourism requires multiple infrastructures, including accommodation spaces. Eco-tourism resorts are created, rehabilitated, or exploited in the native space, and while maximizing interaction with local communities and paying attention to the diversity of climate and nature, provide the presence of tourists to experience life in the natural and indigenous environment (Ministry of Cultural Heritage, Tourism and Handicrafts, 2020, 3). These resorts are usually run by local people, thus increasing the employment of the local community and the economic prosperity of the destination (Ghaith, 2019, 35). Therefore, it can be said that increasing the demand for eco-tourism accommodation can achieve some of the goals of sustainable tourism. According to the conducted research, eco-tourism resort is known as one of the most important tools for the realization, organization, and management of eco-tourism (Hashemi, 2021, 53). This issue shows the prominent role of architecture in the phenomenon of eco-tourism. In addition to providing a place to stay, the building of an eco-tourism resort can play a role as a tourist attraction and provide the possibility of a special experience of living for the residents in a pleasant atmosphere for tourists, which is one of the main goals of eco-tourism. Gilan province has a long history and ancient culture. It is particularly interesting for tourists to know about its culture, ritual, and history (Roustaei, Gholipour Soleimani, Shabgoo & Delafrooz, 2021, 23). In recent years, eco-tourism has been expanding in rural areas of Gilan province and has been so popular. However, in some cities of Gilan province, including Rasht, despite the eco-tourism potential, this issue has been neglected and has not been considered by experts. Lack of access to suitable accommodation place is one of the reasons for the low desire of tourists to stay in Rasht. Although accommodation is not the main goal of the tourist, there is no desire to visit an attraction without accommodation facilities. Therefore, special planning is necessary to improve

the quality and quantity of residential centers in Rasht (Hesam & Aghaeizadeh, 2018, 49). While the indigenous houses and historical fabric of Rasht are a potential factor in the prosperity of tourism in the region, unfortunately, many ancient buildings have been destroyed in recent years, and some abandoned. The special conditions of the fabric, such as narrow alleys and the lack of vehicle access to some parts, have also made living conditions difficult for residents and have been another factor in the abandonment and destruction of buildings. It is predicted that the construction of eco-tourism resorts will revitalize these structures and provide sustainable job opportunities for residents, which will be a double incentive to preserve and revive local architectural patterns and historical fabrics. Therefore, addressing this issue as a practical solution to protect indigenous architecture seems necessary. Historic houses are symbols of the history of life, art, beliefs, customs, and lifestyle, and in a way, they can be considered a museum of all the socio-cultural customs of the older generations (Moulaii & Soleymani, 2017, 95). Therefore, using the architectural patterns of these houses can provide effective solutions for the design and development of eco-tourism resorts, and the present study has been conducted for this purpose.

Based on the research to answer the main question and some sub-questions as follows:

- What physical characteristics do the historic houses of Rasht have, and what solutions can be obtained from analyzing these features regarding the design of eco-tourism resorts in Rasht?
- What is the relationship between mass and space in the historic houses of Rasht?
- What is the quality and quantity of open, semi-open, and closed-space organizations in these houses?
- Which pattern do the number of floors and their connection to the ground follow in the historic houses of Rasht?
- What components, materials, and methods have

been used in designing and decorating the interior and exterior of this building?

- How can the physical characteristics identified in the historic houses of Rasht be used in the design of its urban eco-tourism resorts?

Research Background

Several studies have been conducted on the architecture of historic houses and the architectural structure of eco-tourism resorts on local and international scales. Studies have been conducted on the architecture of historic houses in different cities of Iran, including the book "Old Houses of Tabriz" (Keynejad & Shirazi, 2009). In this book, fifteen chapters of historic houses in Tabriz have been analyzed and studied. "Typology of Qajar Era houses in Isfahan" is the title of an article in which Qajar period houses in Isfahan have been examined based on the characteristics of architectural space, structures, and decorations (Ghasemi & Memarian, 2011). The study of the typology of residential architecture in Golestan province has introduced three types of residential architecture for the plain, foothill, and mountain regions (Soltanzadeh & Ghaseminia, 2012). A study about the houses in Bushehr's historical context has introduced these houses' elements and components (Hedayat & Tabaian, 2016). In a study entitled "Typology of historic houses of the old texture of Mashhad, from the early Qajar to the late Pahlavi" (Farahbakhsh, Hanachi & Ghanaei, 2017), the separation of historic houses based on the shape and form of elements such as entrance, vestibule, hallway, courtyard, porch, facade decorations, and spaces. The interior is divided into three categories, including the first half, second half and first Pahlavi Qajar species. Khakpour, Ansari and Tahernian I (2010), in an article entitled "The typology of houses in the old urban fabric of Rasht," studied the characteristics of the historical fabric of Rasht in the past and items such as layout, the orientation of the building, some physical elements and their application in historical housing architecture have been examined. In this

study, residential patterns in the old context of Rasht have been introduced in the form of four general types based on the quality of open and closed spaces and the arrangement of rooms in the accompaniment of the yard. In the book series of Gilan Culture and Civilization Encyclopedia, two books have been written in the field of Gilan architecture. The first is "The Architecture of Gilan's Houses" by Khakpour (2007), in which the general outline of Gilan architecture and the effect of environmental conditions on this architecture, economic activities, and popular culture have been discussed. The book "Historical buildings of Guilan" (Mobarhan Shafiee, 2011) also provides an overview of the old textures of cities in Gilan province and introduces a number of historic houses that are valuable in terms of local architecture. Different comments have been made about the word eco-tourism and its usage background. There seems to be a global consensus that eco-tourism existed in practice before the 1980s, even if there was no name for it (Honey, 2008). Some attribute the history of eco-tourism to a distant time, to Hatzer, and believe that he used the term in the 1960s to describe the interrelationships between tourism, the environment, and cultural features (Drumm, 2002). According to Hatzer, the concept of eco-tourism was formed in response to inappropriate development practices and the disregard for environmental considerations, dating back to the late 1960s, when experts were concerned about the over-extraction of resources. The term "ecological home" was first introduced to the world at the 1994 International General Seminar on Eco-tourism Resorts at Camp Maho Bay, US Virgin Islands (Mehta, 2002). Following the 1994 seminar, the World Eco-tourism Association published the first book on housing services, residence source for planners and developers, which provides information on location, investment, planning, design, and using alternative energy, protection training, guidelines, and a range of effective resources including a variety of architectural plans for residences. In a chapter of his research, Hagberg (2011) examines

several ecologists in Ecuador and its architectural features and principles. In India, Sain (2013) examined the planning of eco-tourism related to architecture. In this research, he has studied the history of architecture and its relationship with eco-tourism and has examined various indicators in this field. Local researchers have also published articles on architecture and eco-tourism. Ghanbari and Kazemi (2017) have studied sustainable tourism development planning emphasizing ecological houses in Hanza district. Ashkan Borouj (2013) explained the development process of tourism in Khur and Biabanak, eco-tourism resorts of the city, and architectural features and their role in tourism attraction. The book "Eco-tourism and nature-friendly resorts" by Shafiei and Rabbani (2019) was published to study the dimensions of eco-tourism, emphasizing the role and position of nature-friendly resorts, to achieve the principles and foundations of sustainable tourism. This book explains the position and role of each stakeholder in the development of eco-tourism by providing a general framework. This book, investigates the generalities and concepts of eco-tourism, eco-tourism planning and development and target marketing, eco-tourism resorts as the main part of the eco-tourism service chain, and finally the topics related to eco-tourism resorts in Iran. The International Ecotourism Society (TIES) and their representatives from 35 regions of the world on 5 continents worked out guidelines for eco-tourism resorts, and in 2002 Mehta et al. published a book entitled International Ecolodge guidelines. This book was published by Taghi Akbarpoor entitled "Global guidelines for the creation, development, and management of indigenous resorts (eco-tourism)" in Iran in 2020, which contains topics such as site selection, biophysical effects, architectural design, economic-social and cultural effects, legal and financial studies, performance and management, marketing and promotion, training, monitoring and evaluation of eco-lodges. Also, regulations have been presented by the Cultural Heritage, Tourism and Handicrafts Organization for the operation,

evaluation, and grading of eco-tourism resorts in the country (2014, 2020), which refers to the local structure of the resort and architecture compatible with the fabric, but lacks practical instructions in the field of architecture. In 2019, to better organize the rural eco-tourism resorts of Gilan, supplementary regulations were developed by the technical committee of the province's eco-tourism for the renovation and construction of rural eco-tourism resorts in Gilan, but in relation to urban eco-tourism resorts in Gilan, no special studies have been carried out so far, and based on the great potentials of Rasht, a study with an analytical approach to the architecture of traditional houses in Rasht and using the features of this architecture in designing accommodation spaces Eco-tourism seems essential.

Theoretical Foundations

Eco-tourism is a particular type of tourism performed to protect the natural environment and support local communities (Amanda, 2019, 230). According to the international definition in 2002, an eco-tourism resort is an eco-labeled resort meeting the philosophy and principles of eco-tourism. Eco-tourism resorts are those built in pristine natural environments, rural contexts, and historical contexts of cities with the highest possible level of environmental standards and consistent with vernacular architecture and natural appearance of the region, providing the presence and stay of tourists with acceptable and defined quality while interacting with the local community (Gets & Carlsen, 2004, 239). These resorts are usually renovated old houses or new buildings similar to the traditional patterns of each region. Eco-tourism resorts offer a set of elements based on the spatial and social-cultural characteristics of the destination, such as food, handicrafts, local culture, etc. Due to the architectural style and organic materials used in the building, interior design, and local furniture, as well as the activities defined in it, these resorts are a kind of eco-museum and a tourist "attraction" (Shafiei & Rabbani, 2019, 183). Eco-tourism resorts are required to comply with certain principles and

conditions; including the reduction of negative environmental impacts and the protection of ecology, local customs, and culture while interacting with visitors, local community participation, and local community enjoyment of economic benefits and education of visitors (Mafi, Pratt & Trupp, 2019, 311). Eco-tourism resorts have four main principles that distinguish them from other accommodations such as hotels (Shafiei & Rabbani, 2019, 188). These principles are 1) Indigenous structure of tourism products, services, and activities; 2) Appropriate tourism infrastructure; 3) Ownership structure, family management, and indigenous community participation; 4) Ecological environmental structure; which refers to the field of architecture and includes: the use of organic materials, indoor and outdoor interior design, traditional and indigenous furniture and equipment (quilts, mattresses, bed screws, cushions, etc.), using renewable energy, harmonizing the architecture of the residence with the climate and environment, managing and recycling waste and sewage, creating complementary spaces needed by tourists (pavilion, seats, parking, etc.). Plans, requirements, and guidelines for the design and development of eco-tourism resorts must be in line with the protection of environmental structures and the natural and cultural landscape and also have a committed approach to the design, construction, and sustainable implementation. Therefore, eco-tourism resorts must use policies, including location selection, sustainable design, and structure (ibid., 2019, 204). The physical space of the vernacular houses of Rasht, like the vernacular architecture of other parts of the world, has its own characteristics. This architecture is significantly different from other regions of the country in terms of mass and space fit, layout and location of the building on the site and orientation, form and relationship of the plan, the accompaniment of open, semi-open, and closed spaces, ground connection, and decorations. The indigenous architecture of the historic houses of Rasht is in line with the natural context of the building and has been crystallized in accordance

with the cultural, social, and economic needs of the space users. These cases are completely consistent with the characteristics defined for eco-tourism resorts, and thus recognizing the architectural features of these houses as a model for creating eco-tourism resorts in the historical context of Rasht will be helpful.

Research Method

The present study is applied research in terms of purpose and qualitative in terms of the nature of the data. The research method is case study and descriptive-analytical, and data analysis was carried out through comparison and interpretation. In this study, fifteen samples of houses from the Qajar and Pahlavi periods in the historical context of Rasht were selected in a purposeful and non-random sampling method. The profile of houses are described in Table 1.

This study has been conducted to achieve the architectural form of eco-tourism resorts (Fig. 1). In this article, a conclusion is made about the type of architecture of eco-tourism resorts in Rasht by analyzing historic houses and their physical features to identify ideas for designing eco-tourism resorts in this city. The required information was obtained

through available documents and library resources, as well as field observations and images of the building.

For a more detailed review, all plans were plotted with AutoCAD software, and the spots were marked in Photoshop software. In the analysis of the obtained information, items such as the relationship between mass and space, the orientation of the building, proportions, geometry, open spaces, semi-open and closed, materials, doors and windows, and interior and exterior decorations were examined. The conclusion was obtained from the comparison and analysis of categorized information, and finally, solutions for designing the residence building based on the architectural patterns of historic houses in the region are presented.

Study Area

Since urban eco-tourism resorts are established in the historical context of cities, the study area of this research is also based on the examples in the historical contexts of Rasht. During the reign of Shah Abbas Safavid and at the same time with the beginning of the development of Rasht, the city consisted of five neighborhoods. The regular growth of these neighborhoods during the Qajar period

Table 1. The profile of houses. Source: Authors.

No.	Building name	History	Location
1	Abrishami House	Qajar	Seyqhalan
2	Mirza Khalil Rafi House	Qajar	
3	Hanani House	Late Qajar	
4	Ayatollah Hojjati House	Qajar	
5	Poorhemmati House	Qajar	Sagharisazan (Zahedan)
6	Nosrat Azam Samiei House	Qajar	
7	Rahmat Samiei House	Qajar	
8	Mehr Hosseini House	Late Qajar	Safi (Zahedan)
9	Eshkevari House	Qajar	
10	Ayatollah Rudbari House	Qajar	
11	Taromsari House	First Pahlavi	Charbaradarn (Khomiran Zahedan)
12	Azarbani House	First Pahlavi	Bazaar
13	Avanesian House	Qajar	Ostadsara
14	Mirza Kuchak House	Qajar	
15	Ghadiri House	Late Qajar or the first Pahlavi	Sabzemeydan (Kiab)

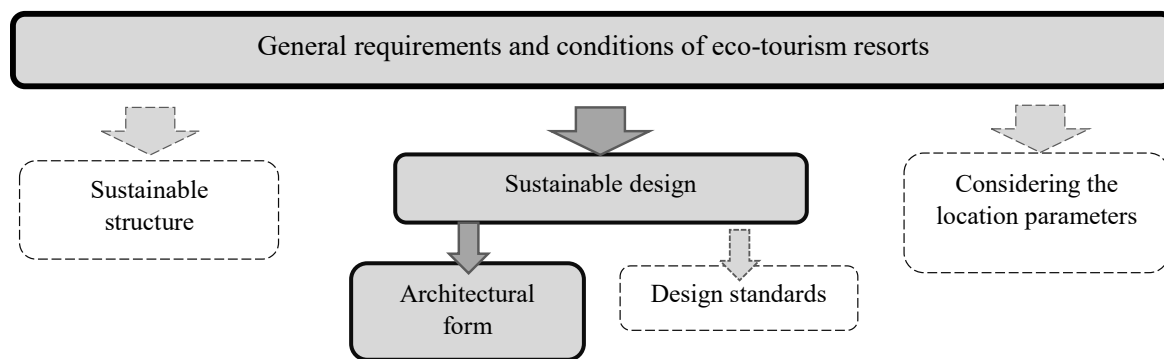


Fig. 1. Requirements and general conditions of eco-tourism resorts and research areas. Source: Authors.

includes a range of seven neighborhoods: Bazaar, Zahedan, Siqlan, Kiab, Ustad Sara, KhemiranKiab, and Khamiran Zahedan (Research and Planning Corporation Urban and Regional Planners, Architects, Engineers, 1974). In the study of houses in these neighborhoods, three general types are often seen; the first and oldest type is the remnant of a specific Qajar type in the climatic region of the north of the country, which in the Safavid context of the city, was the real shaper of the residential fabric of Rasht in its time. After that, another method became common in the city that by using the knowledge of previous architecture encountering climate issues and the use of new materials and methods, following the change of lifestyle affected by the emergence of new phenomena, the public figure gradually turns into residential units. These types often appeared in the city in the late Qajar and Pahlavi periods. The third group of units has been built in recent decades and does not follow a specific rule. Since the purpose of creating an eco-tourism residence is to experience the traditional and indigenous life of the people of the region, therefore, examples of houses related to the first and second categories have been studied in this research. Fig. 2 shows the location of selected houses in the historical neighborhoods of Rasht.

Discussion

Recognizing the physical characteristics of selected historic houses as a design model for eco-tourism resorts requires the study of various factors classified under the general headings of mass and space,

plan, semi-open space, facade, and decoration. This categorization is to find answers to research questions and achieve architectural solutions to create urban eco-tourism resorts. Instructions for designing eco-tourism resorts in Rasht are obtained by analyzing these factors.

• Mass and space

To understand the relationship between mass and space in these houses, factors such as the layout and location of the building, the shape and details of the yard, land area, and lot coverage, and the shape and overall proportions of the plan were examined which can be observed in Table 2.

The type of residential units in Rasht in its evolutionary course from the Safavid period is continuously transferred to Qajar architecture and often have a rectangular form covered with a sloping roof located individually and usually at a distance from the courtyard wall at the site. In some examples, the courtyard surrounds the building on both sides in the north and south. In these cases, corridors usually connect the north and south parts in the east and west parts on the ground floor and sometimes on both floors. In some cases, the building spot has been located on the north and west side of the lot and the yard is located unilaterally in the southern or eastern part of the lot (Fig. 3).

The plans of these buildings are rectangular with proportions between one-to-one and a half and one-to-three and, in most cases, have proportions between one-to-one to one-to-two (Fig. 4) and are often partially or fully symmetrical.

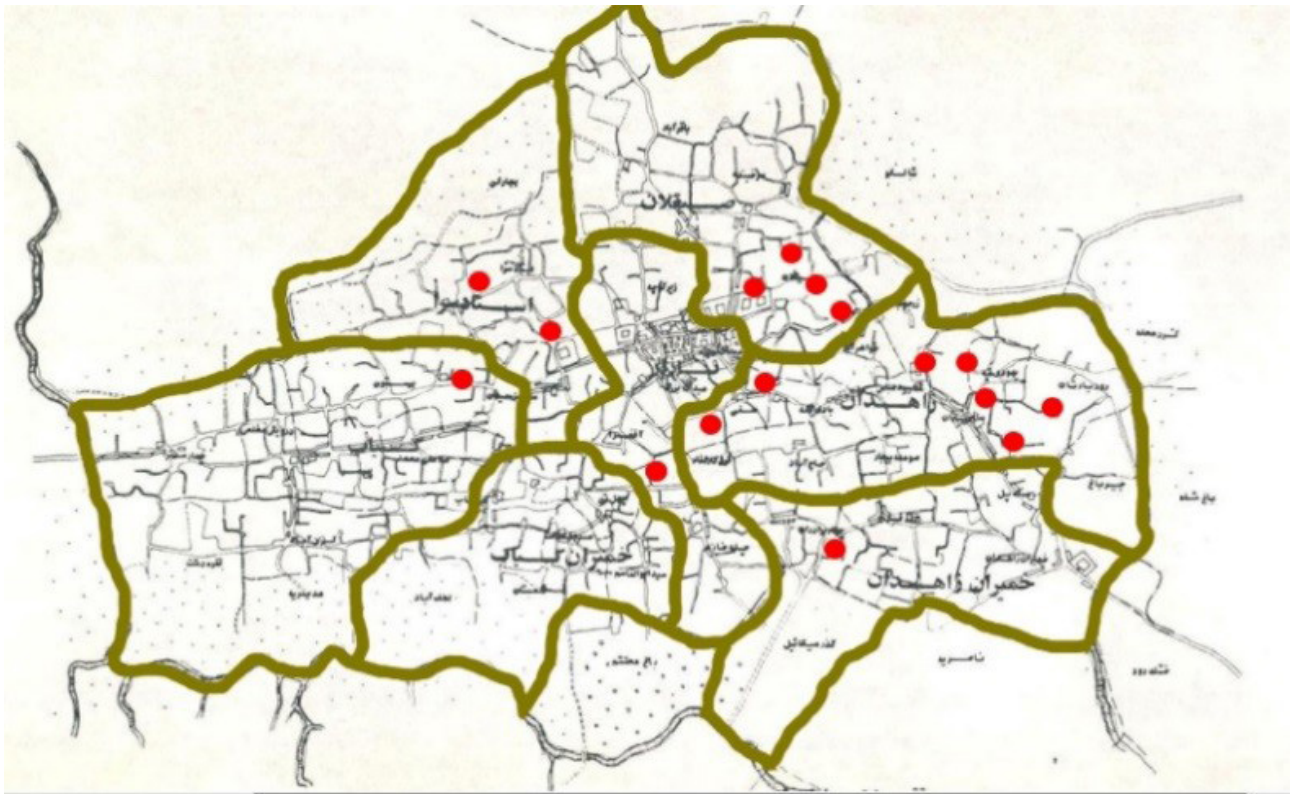


Fig. 2. Neighborhood boundaries of Rasht city in the Qajar period along with selected houses. Source: Research and Planning Corporation Urban and Regional Planners, Architects, Engineers, 1974.

With the development of urbanization, the shape of buildings gradually changed. Unlike the residential units of the Qajar type, the plans of the late Qajar buildings, which mostly followed one particular form, are very diverse. In addition to repeating the rectangular shape, square, L, and U-shaped planes also emerged. Units also were designed with a central courtyard with rooms located on three or four courtyard sides. These units, unlike the units of Qajar type, which were located at a distance from the courtyard walls, are often attached to one of the sides of the courtyard. In this regard, in constructing the units located next to the line, a great deal of effort has been made to align them and create a favorable view. In this period, the plans are more diverse and in harmony with the shape of the lot and move away from the symmetry of the previous species (Fig. 5). The land area in the studied samples is between 200 to 2000 square meters of course, according to the available documents and images, the land of some houses in the past was more extensive, which has changed over time with the development and

widening of urban thoroughfares or separation and transfer. In general, the buildings belonging to the early Qajar period have a larger courtyard, and gradually, with the increase in the density of the city, the courtyards in the late Qajar period and the first Pahlavi period become much smaller. Based on the current situation, the lot coverage of the studied buildings is between 15 to 65% and the highest frequency percentage is allocated to the range of 20 to 40% (Fig. 6).

In addition to the building stain, other elements such as water wells, ponds, gardens, and green space can be seen in the yard. Ponds in the form of rectangles, ovals, or intricate geometric shapes have usually been located on the axis of the building, and gardens and trees have been planted around it. The pools are monochromatic or covered with tiles with the role of myths and kings. In some houses, jars are usually buried in the ground in the northern courtyards and shady areas for salting fish.

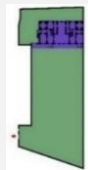

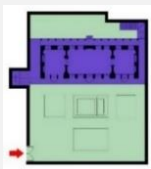



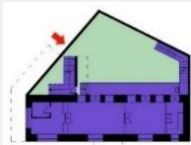

• Plan organization

In addition to open spaces, recognizing the


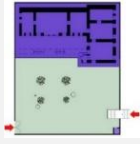

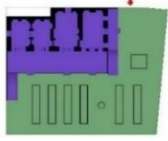


Table 2. The relationship between mass and space. Source: Authors.

Mass and space					
Building name and view	Layout	Yard	Land area (Square meters)	lot coverage (Percent)	Shape and proportions of the plan
Abrishami House 		Entrance: Hashti / No mediatory Yard: South and North Garden: Yes Pond: Yes Other: water well	2000	25	Geometry: Rectangular Symmetry: has relative symmetry Orientation: East- West Proportions: 2 to 1
Mirza Khalil Rafi House 		Entrance: Direct from the passage Yard: South and North Garden: Yes Pond: Yes Other: water well / fish salting facility	1500	30	Geometry: A rectangle with extensions that fit the shape of the land Symmetry: has relative Orientation: East- West Proportions: 1/3 to 1
Hanani House 		Entrance: Direct from the passage Yard: South, North, and East Garden: Yes Pond: Yes Other: water well	500	40	Geometry: L-shaped and fits the shape of the land Symmetry: None Orientation: - Proportions: -
Ayatollah Hojjati House 		Entrance: Sabat / No mediatory Yard: Southeast Garden: Yes Pond: None Other: water well	700	60	Geometry: L shape Symmetry: None Orientation: - Proportions: -
Poorhemmati House 		Entrance: Direct from the passage Yard: East Garden: Yes Pool: Yes Other: water well	900	30	Geometry: Rectangular Symmetry: has relative Orientation: North-South Proportions: 1 to 3
Nosrat Azam Samiei House 		Entrance: Direct from the passage Yard: South and North Garden: Yes Pond: Yes Other: water well	1400	30	Geometry: Rectangular Symmetry: Yes Orientation: East- West Proportions: 1 to 1.5

Rest of Table 2.

Mass and space					
Building name and view	Layout	Yard	Land area (Square meters)	lot coverage (Percent)	Shape and proportions of the plan
Rahmat Samiei House 		Entrance: Direct from the passage Yard: North and South Garden: Yes Pond: None Other: water well	1500	15	Geometry: Rectangular Symmetry: Yes Orientation: East- West Proportions: 1 to 2
Mehr Hosseini House 		Entrance: Sabat Yard: East and South Garden: Yes Pool: Yes Other: water well	400	60	Geometry: U-shaped Symmetry: None Orientation: - Proportions: -
Eshkevari House 		Entrance: Sabat Yard: Sout and North Garden: Yes Pond: Yes Other: water well	600	30	Geometry: Rectangular Symmetry: Yes Orientation: East- West Proportions: 1 to 2.5
Ayatollah Rudbari House 		Entrance: Direct from the passage Yard: North and South Garden: Yes Pond: None Other: water well	950	50	Geometry: L shape Symmetry: None Orientation: - Proportions: -
Taromsari House 		Entrance: Direct from the passage Yard: South and North Garden: Yes Pond: None Other: water well	200	65	Geometry: L shape Symmetry: None Orientation: East- West Proportions: 1 to 4
Azarbani house 		Entrance: Direct from the passage Yard: West Garden: Yes Pond: None Other: water well	700	65	Geometry: L shape Symmetry: None Orientation: - Proportions: -

Rest of Table 2.

Building name and view	Mass and space				
	Layout	Yard	Land area (Square meters)	lot coverage (Percent)	Shape and proportions of the plan
Avanesian House 		Entrance: Direct from the passage Yard: South Garden: Yes Pond: None Other: water well	750	45	Geometry: L shape Symmetry: None Orientation: East- West Proportions: 1 to 2
Mirza Kuchak House 		Entrance: Direct from the passage Yard: South and East Garden: Yes Pond: None Other: water well	600	35	Geometry: Rectangular Symmetry: None Orientation: East- West Proportions: 1 to 1.5
Ghadiri House 		Entrance: Direct from the passage Yard: South and North Garden: Yes Pond: Yes Other: water well	850	45	Geometry: U-shaped Symmetry: None Orientation: East- West Proportions: -

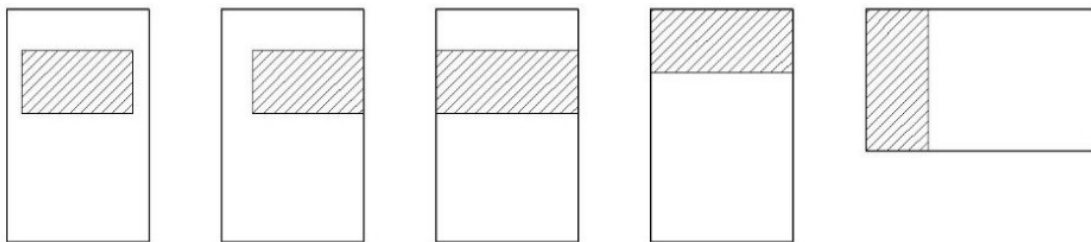


Fig. 3. Site plot plan of the building and the form of the yard in the Qajar houses of Rasht. Source: Authors.

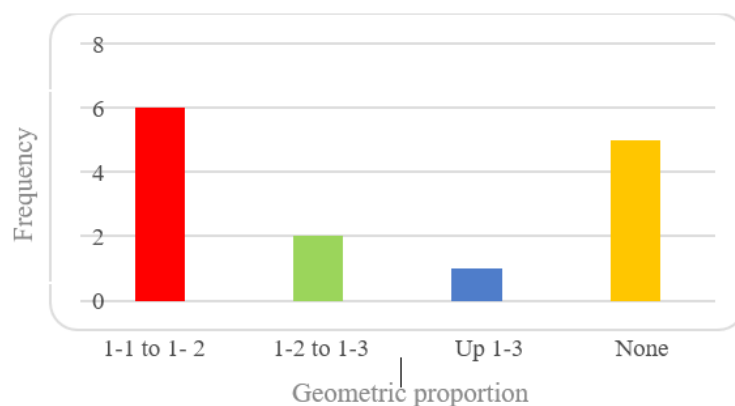


Fig. 4. Geometric proportions of the plan in selected houses. Source: Authors.

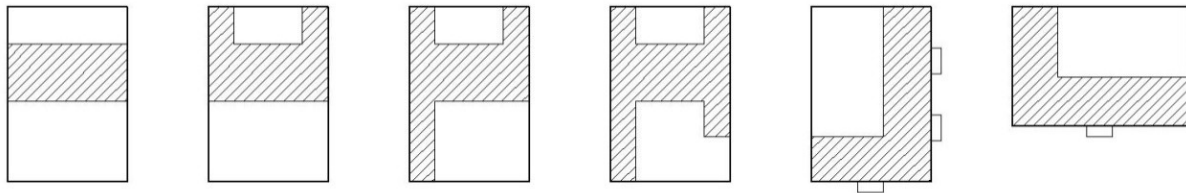


Fig. 5. Plan structure diagram in the late Qajar and Pahlavi houses in Rasht. Source: Authors.

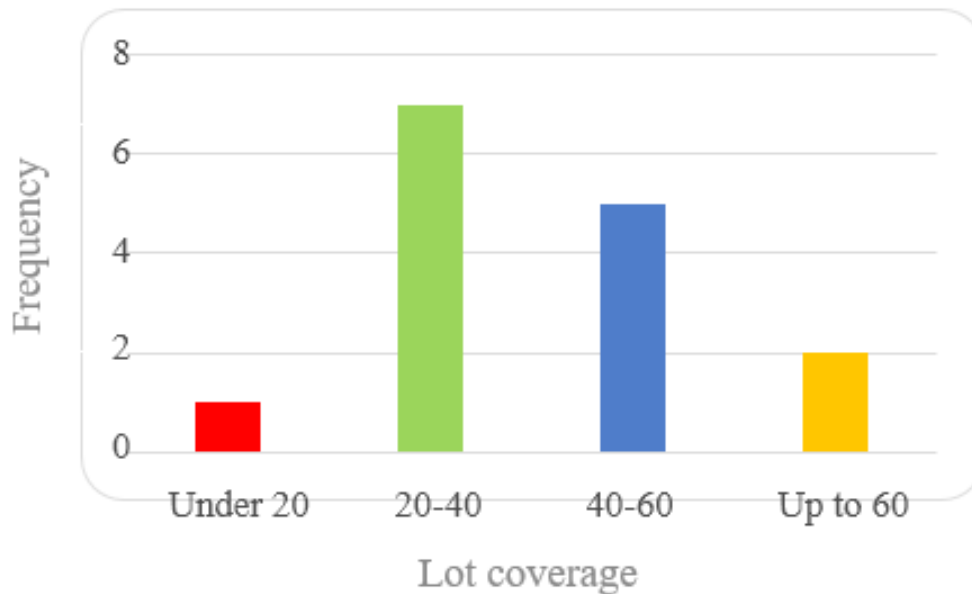


Fig. 6. Lot coverage in selected samples. Source: Authors.

quantitative and qualitative characteristics of closed spaces also seems necessary in achieving design solutions for ecotourism resorts. Therefore, analysis of these characteristics of rooms, stairs, and communication spaces in selected houses is essential (Table 3).

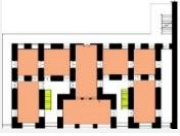
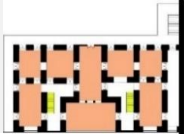

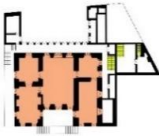
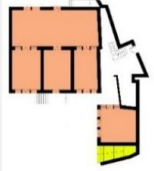
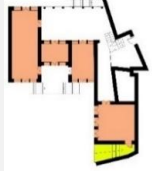
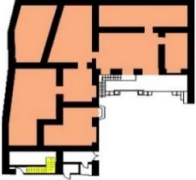



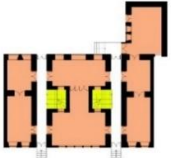
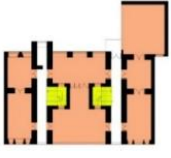
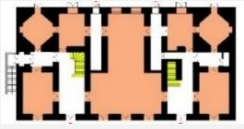
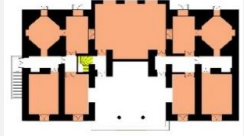
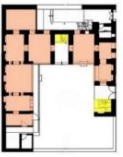
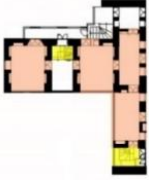
There is a similar structure in the plans of the buildings related to the early Qajar period. In the middle of the plan, the main room or porch is located, and it is possible to enter the building from two sides. Sometimes the porch is up to two stories high, and the rooms are located on three sides of the porch. The main room is located behind the porch and in the middle of the plan, sometimes in an alcove manner on the upper floor, and has large windows or “Orosi” with tinted glass. The other smaller rooms are located on either side of the plan. The rooms are connected from the inside and are so-called nested (Fig. 7).

The number of rooms is proportional to the area of the house, and the proportions of the dimensions of the

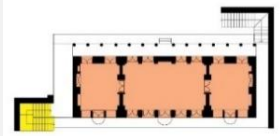
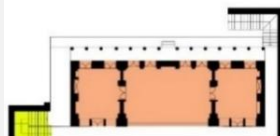

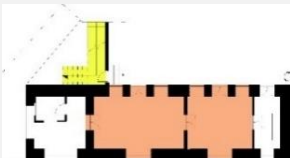
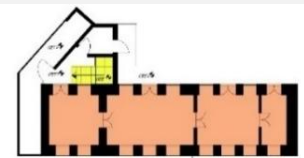
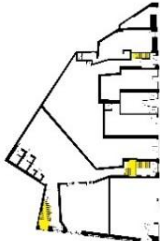
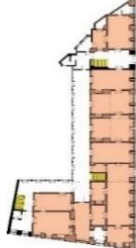
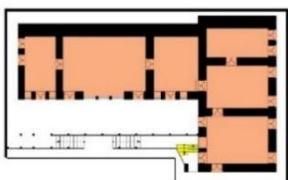


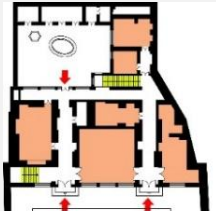
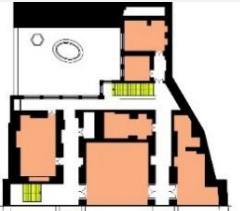
rooms are between one to one to two. The frequency chart (Fig. 8) shows that rooms with a width of 3 to 4 meters and a length of 5 to 6 meters were more common. The alcove is the most important part of the house with larger dimensions and in a rectangular or T-shape in the center of the plan. In Qajar buildings, access to the upper floor is usually possible through the stairs symmetrically on both sides of the porch or the main room. The shape of the stairs is one-way, two-way, and L-shaped, depending on the spatial connections. Stairs are made of wood or brick and are usually located in front of the entrance door of the building or the middle space of the main room and other rooms.

In the buildings of the late Qajar and Pahlavi periods, the variety of room sizes also increases, but the size and proportions of the rooms do not significantly change. Following the variety of plans, the shape of the stairs of the floors also changed and went out of symmetry, and it is usually transferred to the corners of

Table 3. Plans spatial relationships, closed space of rooms, and staircases. Source: Authors.

Name of the building	Plan		Number of the rooms on the ground floor	Number of the rooms on the first floor
	Rooms on the ground floor	Rooms on the first floor		
Abrishami House Lighting: South, North, East, West			8 Dimensions: (6*3) (4*3)	8 Dimensions: : (6*3) (4*3)
Mirza Khalil Rafi House Lighting: South, North			7 (4*4) (4*7) (9.5*7)	5 (4*4) (4*7) (9.5*7)
Hanani House Lighting: South, North, West			5 (5*3) (4.5*11) (4.5*4)	4 (5*3) (4.5*8) (4.5*4)
Ayatollah Hojjati House Lighting: South, East			8 (5*3.5) (5*3) (5*7) (4*4) (11*3)	10 (5*3.5) (5*3) (5*7) (4*4) (11*3)
Poorhemmati House Lighting: South, North, East, West			5 (5*3.5) (5*3) (4*2.5)	5 (5*3.5) (5*3) (4*2.5)
Nosrat Azam Samiei House Lighting: South, North, West			7 (4.5*4.5) (6.5*4.5) (5*7.5)	7 (4.5*4.5) (6.5*4.5) (5*7.5)
Rahmat Samiei House Lighting: South, North			7 (4*5.5) (3.5*4.5) (4*4) (9*5.5+5.5*8)	9 (4*5.5) (3.5*4.5) (4*4) (9.5*6)
Mehr Hosseini House Lighting: South, North, East, West			9 (4*3) (4*4) (4*2.5) (2.5*2.5)	4 (4*3) (5*2.5)

Rest of Table 3.

Name of the building	Plan		Number of the rooms on the ground floor	Number of the rooms on the first floor
	Rooms on the ground floor	Rooms on the first floor		
Eshkevari House Lighting: South, North			3 (4*3) (4*6.5)	3 (4*3) (4*6.5)
Ayatollah Rudbari House Lighting: South, North, East		No	8 (8.5*3.5) (8.5*7.5) (5*3.5) (4*9)	No
Taromsari House Lighting: South, North			2 (4*3.5) (6*3.5)	4 (4*3.5) (6*3.5) (2.5*3.5)
Azarbani house Lighting: East, south, and indirectly from west			No	10 (5*3.5) (3*6) (3*2.5) (9*3.5) (5.5*2.5)
Avanesian House Lighting: South, East, West		No	6 (5*3.5) (5*7) (5*2.5)	No
Mirza Kuchak House Lighting: South, East			4 (5.5*3.5) (3*4)	4 (5.5*3.5) (3*4)
Ghadiri House Lighting: South, North			6 (7*7) (7*4) (6*3) (5*3) (3*3)	6 (7*7) (7*4) (6*3) (5*3) (3*3)

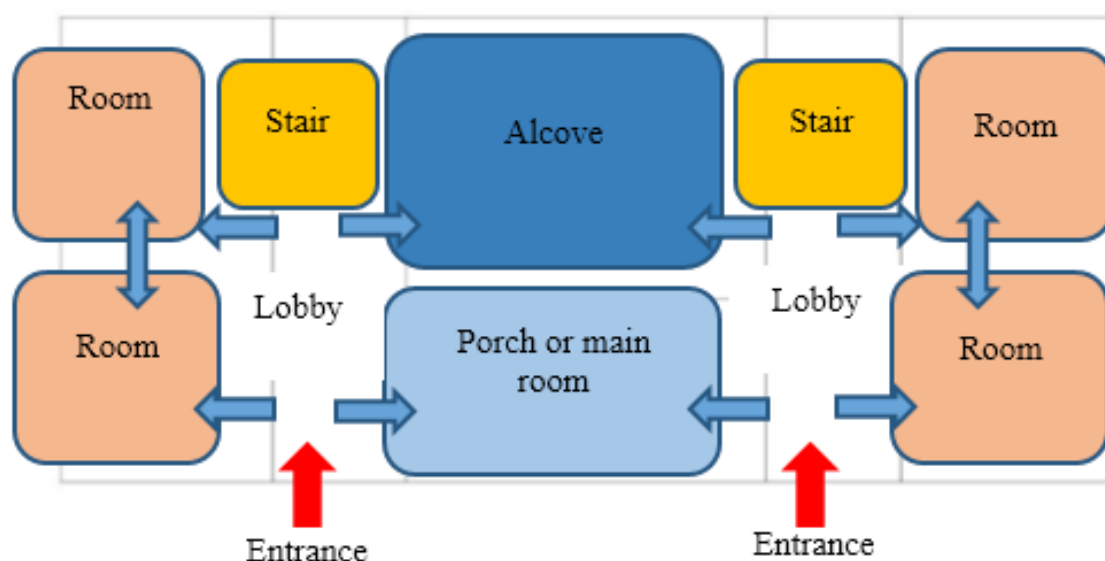


Fig. 7. Plan diagram in Qajar houses of Rasht. Source: Authors.

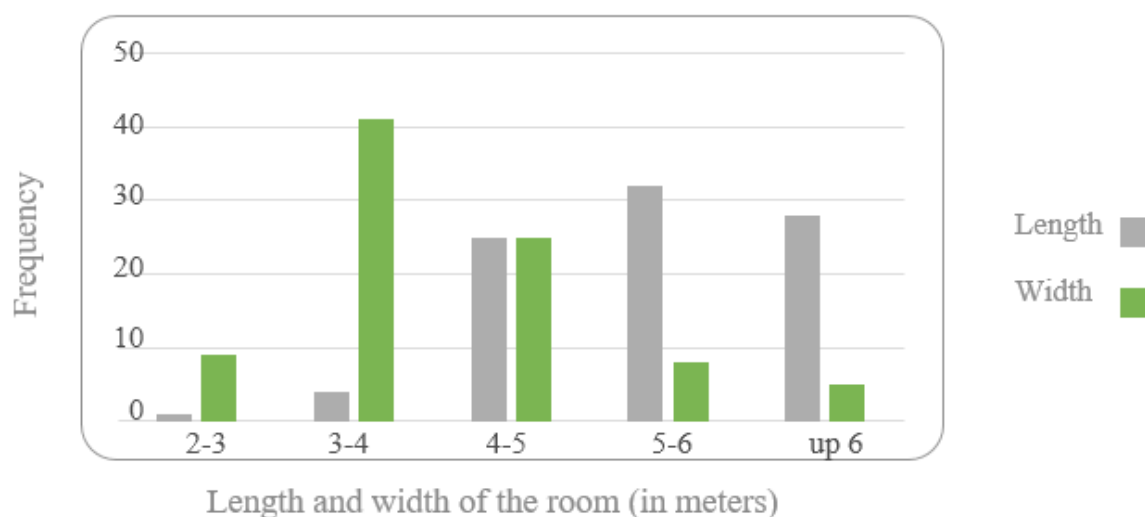


Fig. 8. Length and width of the room (meters). Source: Authors.

the plan or outside the base of the building. The rooms are lit from the north, south, east, and in some cases, indirectly from the west. The openings and lighting are different in different directions of the building; in such a way that the all-round and “Orosi” are considered on the south or east front and the windows are placed individually on the façade on the north side. On the western front, lighting is usually done through a passageway or a porch that is covered with glass.

• Semi-open space


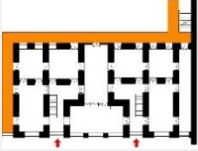
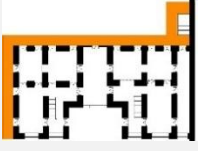

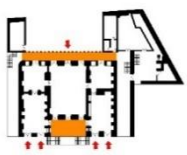
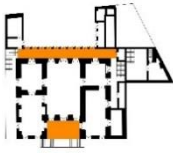







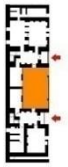


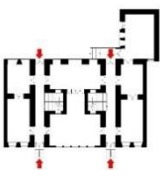
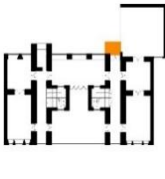


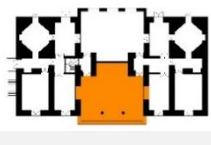






The main façade of the building is usually facing south or east, and a wide porch is located on these fronts. In the northern and western parts, there are porches with a smaller width, which are sometimes

glazed, especially on the upper floor. The porches have delicate wooden columns and ornamented guards. In some buildings, there is no semi-open space called a porch, but the spaces facing south and east have wide windows that can be opened and used as a semi-open space when needed. Especially in the late Qajar and the first Pahlavi, the use of glazing passageways became more common. During this period, the construction of a balcony facing the passage becomes the dominant type in the building. Table 4 shows how to establish a semi-open space in selected buildings.


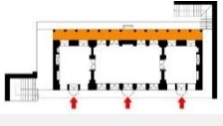
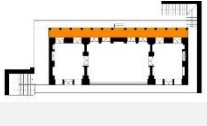

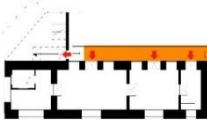
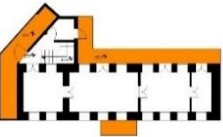


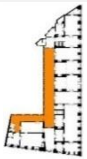



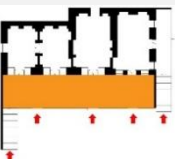
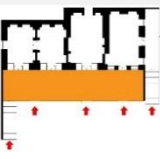

• Facade and vertical relationship

Cement moulding, brickwork and glazing cover the facade of the building. Wooden doors and windows

Table 4. Plans spatial relationships, and semi-open space. Source: Authors.

Name and picture of the building		Semi-open Space		Width of porch and hall (meters)			
		Ground floor porch	First-floor porch		North	South	East west
Abrishami House				Ground floor	1.5		1.5
				firstF	1.5		1.5
				floor			
				lassG	*		*
Mirza Khalil Rafi House				Ground floor	1.5	3.5	
				firstF	1.5	1.5	
				floor			
				Glass	*		
Hanani house				Ground floor	4		
				firstF			
				floor			
				Glass			
Ayatollah Hojati House				Ground floor		2	
				firstF			
				floor			
				Glass			
Poorhemti House				Ground floor			5
				firstF		1	2.5
				floor			
				Glass			
Nosrat Azam Samiei House				Ground floor	1		
				firstF			
				floor			
				Glass			
Samiei House				Ground floor	6		
				firstF			
				floor			
				Glass			
Rahamat Samiei House				Ground floor	1	2.5	1
				firstF			
				floor			
				Glass			
Mehr Hosseini House				Ground floor			
				firstF			
				floor			
				Glass			

Rest of Table 4.

Semi-open Space							
Name and picture of the building	Ground floor porch	First-floor porch	Width of porch and hall (meters)				
			North	South	East	West	
Eshkevari House 			Ground floor	1			
			1st floor	1			
			floor				
			Glass				
Taromsari House 			Ground floor	1			
			1st floor	1	1		1
			floor				
			Glass				*
Ayatollah Rudbari House 			Ground floor	1	1	1	
			1st floor				
			floor				
			Glass				
Azarbani house 			Ground floor				
			1st floor	2			2
			floor				
			Glass	*			*
Avanesian House 			Ground floor		3		
			1st floor				
			floor				
			Glass				
Mirza KuchakKhaan House 			Ground floor		3.5		
			1st floor		3.5		
			floor				
			Glass		*		
Ghadiri House 			Ground floor				
			First floor				
			floor				
			Glass				

are white, brown, and blue. The windows are often vertical, with one-to-one to one-to-two ratios (Table 5). Also, the window without O.K.B on the ground floor and the first floor has been used extensively. The building is built on one or two floors and on a “Korsi”, “Gorbe-ro” and basement with a few steps below the yard, and vents are provided for

ventilation and airflow in the outer walls (Fig. 9). The height of the basement was lower than other floors; in the past, it was used for storage and service space. The ground floor and first floor rooms served as living spaces, and the rooms upstairs usually have more decorations, which shows that they are more important than other spaces.

Table 5. Facade and vertical relationships. Source: Authors.

Building's name	Number of floors	Connection of building to the ground	Façade			Façade materials
			Doors and windows			
Abrishami House	2	“Gorbe-ro”	Material: Wood	Color: White	Proportions: 1 to 1/3	Cement moulding
Mirza Khalil Rafi House	2	“Korsi”	Material: Wood	Color: White	Proportions: 1 to 2/2	Cement moulding
Hanani House	2	“Korsi”	Material: Wood	Color: White	Proportions: 1 to 2	Cement moulding
Ayatollah Hojjati House	2	“Korsi”	Material: Wood	Color: Light blue	Proportions: 1 to 1/2, 1 to 1/5	Cement moulding
Poorhemmati House	2	“Gorbe-ro”	Material: Wood	Color: Cyan	Proportions: 1 to 1/3, 1 to 1/5	Cement moulding
Nosrat Azam Samiei House	2	“Korsi”	Material: Wood	Color: Brown	Proportions: 1 to 2, 1 to 1/5	Cement moulding
Rahmat Samiei House	2	basement	Material: Wood	Color: Brown	Proportions: 1 to 1/5	Cement moulding
Mehr Hosseini House	2	“Korsi”	Material: Wood	Color: Cyan	Proportions: 1 to 1/5	Cement moulding
Eshkevari House	2	“Gorbe-ro”	Material: Wood	Color: Brown	Proportions: 1 to 2	Cement moulding
Taromsari House	2	“Gorbe-ro”	Material: Wood	Color: White	Proportions: 1 to 2	Cement moulding
Ayatollah Rudbari House	1	“Gorbe-ro”	Material: Wood	Color: White	Proportions: 1 to 1	Cement moulding
Azarbani house	2	“Korsi”	Material: Wood	Color: White	Proportions: 1 to 2	Brickwork
Avanesian House	1	basement	Material: Wood	Color: Cyan	Proportions: 1 to 3, 1 to 1	Cement moulding
Mirza Kuchak House	2	“Korsi”	Material: Wood	Color: Brown	Proportions: Overall	Wood and glazing
Ghadiri House	2	“Korsi”	Material: Wood	Color: Brown	Proportions: 1 to 1/5	Cement moulding

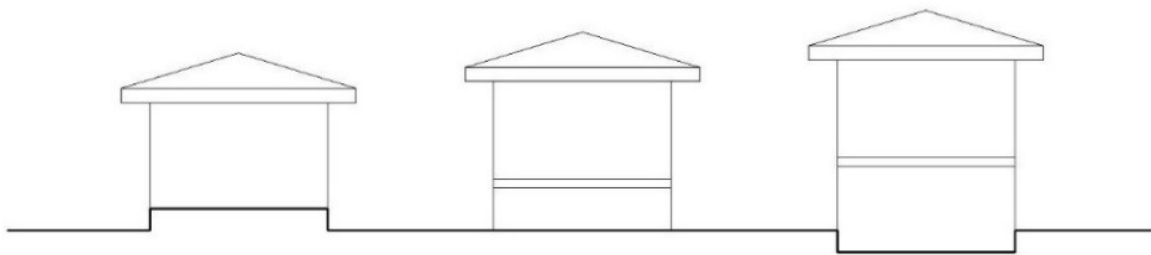


Fig. 9. Diagram of the relationship of the building with the ground level in the historic houses of Rasht. Source: Authors.

• Decorations

In the buildings of the Qajar period, the courtyard wall is free of any decorations from the outside and the building does not have a special shape from the outside passage. The entrance consists of a wooden door decorated with the inscriptions of Quranic verses and a pottery door, and in most cases, the immediate entrance is formed from the passage. In some cases, the crew rooms are at the entrance, and the entrance to the building is through a covered passage. The use of a porch at the entrance is also seen in some examples. In the late Qajar and Pahlavi examples, the main facade with many decorations has been turned into an urban wall, and in some cases, the building has been cantilevered on the first floor towards the passage. The floors of the courtyards is paved, and the wall of the courtyard from the inside of the courtyard is often divided into appropriate parts by arches and is about 5 meters high. In addition, in some cases, delicate brickwork adds to the beauty of the wall. The façade of the building itself is decorated with various types of brickwork, cement, and limestone, and the sloping ceramic-clad ceilings, the lining of the ceiling, and wooden hinges at the top of the building stand out. In some examples, the front of the building is covered with very delicate tinwork, which has a unique beauty. The main and alcove rooms have all-around windows or “Orosi”. Stained glass and wooden knots, along with pargeting, mirroring, mural, and porcelain, from the interior decorations of the rooms. Fireplaces with Pargeting have also been common in rooms. The presence of deep niches next to the window and different

parts of the wall are other common elements in the spaces. Decorations can be seen in any part of this building. The doorways between the rooms are covered with decorative tiles, and the contrast with the floorboards is very noticeable. These tiles are occasionally seen in front of the internal stairs. Also, wooden stair railings with beautiful plans add to the beauty of the interior space. Table 6 refers to the interior and exterior decorations of selected buildings.

The Evolution of the Physical Characteristics of the Historic Houses of Rasht from Qajar to the first Pahlavi

Many common features can be identified in the study of selected samples, but at the same time, significant differences can be seen in them. Thus, the examples built in the early Qajar differ from those built in the late Qajar and early Pahlavi eras. Examination of the samples shows that the architecture has changed with the needs and lifestyle over time, so the buildings can be divided into two general categories; 1. Buildings of Qajar period 2. Buildings of late Qajar and the first Pahlavi. The first-category houses have far wider courtyards. The building on the site is open on four sides, the north and south courtyards and sometimes the one-way courtyard is south or east. The shared part of houses is often limited to the yard wall and the parts built according to each other do not have a common wall. The form of the plans is often rectangular and symmetrical to the transverse axis. The porch is located in the middle of the plan and the rooms are next to it. The main living

Table 6. Decorations. Source: Authors.

Building's name	Decorating			
	Entrance and external wall	Yard's wall	Slope and ceiling	Interior design
Abrishami House	Wooden door with decorations- Quranic verse	Arching-brickwork	"Kalle-shiri"	Mirror decoration - Pargeting - Porcelain work
Mirza Khalil Rafi House	New door replaced without decorations	Arching-brickwork	Boarding	Mural- Pargeting -Staircase decorations- Tinted glass
Hanani House	New door replaced	Arching-brickwork	"Kalle-shiri"	Pargeting
Ayatollah Hojjati House	Wooden door with decorations	Arching-brickwork	"Kalle-shiri"	Pargeting - "Orosi"
Poorhemmati House	Wooden door with decorations- Quranic verse	Arch-Brickwork	"Kalle-shiri"	Pargeting - Decorating wooden railings stairs - "Orosi"
Nosrat Azam Samiei House	New door replaced with façade cement decorations	Arch-Brickwork	"Kalle-shiri"	Decorating doors and windows and wooden stair railings
Rahmat Samiei House	Wooden door with decorations- Cement moulding	Arch-Brickwork	Boarding	Pargeting - "Orosi"
Mehr Hosseini House	New door replaced without decorations- Entrance from covered passage	Arch-Brickwork	"Kalle-shiri"	Pargeting - Decorative niche
Eshkevari House	New door replaced without decorations- Entrance from covered passage	Arch-Brickwork	Boarding	Pargeting - "Orosi"- Riser decorations-Decorative niche
Ayatollah Rudbari House	New replaced door without decorations- Pottery facade	Cement covered-Arch	Boarding	Pargeting
Taromsari House	New door replaced without decorations	Arch-Brickwork	Boarding	Pargeting
Azarbani house	Wooden door with decorations - Brickwork decorations - Arch on the forehead - Two bird sculptures on both sides	Brickwork	Boarding- Tinplate decoration	Pargeting and boarding
Avanesian House	New door replaced without decorations	Arch	"Kalle-shiri"	Pargeting - "Orosi"
Mirza Kuchak House	Wooden door with decorations- Brickwork	Brickwork	"Kalle-shiri"	Pargeting and boarding
Ghadiri House	Wooden door with decorations- Brickwork	Arch-Brickwork	"Kalle-shiri"	Pargeting - Mirror decoration- "Orosi"

room is located behind the porch and the alcove is located on the second floor. There is a connecting space and access stairs to the upper floor in the distance between the living room and the rooms on both sides. The second-category houses have almost the same solutions as the Qajar type in terms of responding to climate problems. These buildings have various plans and the shape of the plan is usually a function of the shape of the land in addition to the rectangular shape, L and U shapes have also been used. Especially near the passage and rows, the wall becomes a part of the city wall. Unlike the first category, which has no appearance of a passage, the second category buildings with luxurious decorations show off in the urban view. There are also changes in the internal structure of the plans and asymmetry and variation in the size of the rooms are observed. The symmetrical stairs of the first category have also been replaced by stairs in the corners of the plan and sometimes outside the main building.

Applying the Physical Characteristics of Historic Houses in the Design of Eco-tourism Resorts

The architecture of historic houses in Rasht has provided features in response to environmental, cultural, social, and economic conditions that comply with the standards set for eco-tourism resorts. In previous studies about the historic houses of Rasht, while introducing a number of examples, the impact of climate, culture, and economy on the region's architecture has been studied (Khakpour, 2007). Also, based on the layout of the rooms and lighting, four main patterns have been mentioned (Khakpour et al., 2010). In this regard, there are also multiple studies on architectural components and materials. By analyzing the selected samples, the previous patterns were confirmed and different types were observed. It was found that the difference between the types is generally due to the time of construction. In fact, in this research, after

achieving the main objectives of the research, the selected historical houses of Rasht have been studied from Qajar to the first Pahlavi era. This group of houses, which are generally faithful to the principles of vernacular architecture, can be a good model for creating eco-tourism resorts and evoke the experience of life in old Rasht. Also, to answer the research questions, the relationship between mass and space, organization of open, semi-open, and closed spaces, number of floors, how to connect to the ground, materials, details, and decorations of facades and interior spaces were carefully examined. These studies resulted in factors for the design of eco-tourism resorts in Rasht, which have been described in Table 7.

Conclusion

Today, tourism development is considered one of the best strategies for balanced socio-economic development in societies therefore, it has been considered by public and private sector managers and planners. Eco-tourism is one of the categories of sustainable tourism, the realization of which, like other types of tourism, requires infrastructure. This study discusses the design of eco-tourism resorts as one of the most important infrastructures of this phenomenon. According to the global eco-tourism guidelines, the resort building should follow the local architecture of the region. Therefore, in this study, first, the physical characteristics of historic houses in Rasht have been analyzed. The analysis of the research findings revealed the following results that can be used as design guidelines for the construction and development of eco-tourism resorts in Rasht:

- Direct entrance from outside or with a vestibule or in the form of a sabbat with a wooden door and decorations of cement moulding or brickwork and inscriptions with Quranic verses and a porcelain entrance
- Maximum lot coverage of 60%
- The building is surrounded by a courtyard on one

Table 7. Resort design strategies based on local patterns. Source: Authors.

Resort design strategies based on local patterns	
The relationship between mass and space	Maximum lot coverage of 60%, east or south one-sided courtyard, north and south two-sided courtyard, three-sided or four-side open layout, the main facade facing east or south
Organizing open, semi-open, and closed	The plan form is a function of symmetrical Qajar rectangular patterns or fits the city wall similar to the Pahlavi patterns, the proportions of the rooms are similar to the local patterns, lighting from the south and east and north and through the west, embedding the porch on the floors and the west side as glass. Entrance from the direct passage or by vestibule and sabbat, the presence of water pond and garden and native elements in the yard
Number of floors and how to connect to the ground	One or two floors, with a “Korsi”, “Gorbe-ro” or basement
Interior and exterior materials, details, and decorations	Cement moulding and brickwork decorations on the exterior, roof, and wall covering by roofing tile, the use of “Kalle-shiri” and tinplate decorations, paved courtyard floors, wooden or brick stairs, wooden columns, railing, doors and windows, use of “Orosi”, use of fireplaces and windowsills and plaster moulding and mural and decorations similar to the vernacular patterns in the interior

(south or east), two (north and south), three, and four sides

- One- or two-story building with “Korsi”, “Gorbe-ro” or a basement with a height level of several steps below the yard
- Rectangular plan form with proportions between one-to-one and a half-to-one to three or proportional to the shape of the land near the passages and main rows with L or U shapes
- Symmetrical and rectangular plans with two symmetrical entrances from the yard to the building from both sides of the porch or the main room, using two interior stairs symmetrically
- Stairs made of wood or brick and one-sided, two-sided, and L-shaped decorative wooden railings, the front of the stairs decorated with tiles
- Proportions of rooms between one-to-one to one-to-two with dimensions similar to native patterns and direct lighting from the north, south, east, and mediated from the west
- Rooms in a row and nested, the main room or

alcove with the most decorations in the center of the plan and facing the courtyard with sash or windows all around

- Use of semi-open spaces, preferably on all floors and on the north, south, and east fronts, and the glazed porch on the west and north fronts, the main porch facing the yard and having a depth of more than 3 meters, and all the gables and passageways with columns and railings and wooden decorations
- Hip roofs and lining slopes and the use of medallions and the use of tinplate decorations on the forehead
- Main facade facing east or south with cement or brick decorations
- Wooden doors and windows with one-to-one to one-to-two proportions, use of floor-to-ceiling windows or doors, use of sash and all-glass with wooden frames in white, brown, light blue, and turquoise
- Use of windowsills, fireplaces, and decorations for plaster moulding, lime moulding, mirror decoration,

porcelain tiling, painting, and boarding in interior spaces

- Paved courtyard with arched walls with red brick and clay lid and with elements such as garden, pond, wells, and salting jars

Further research can be conducted in other cities of Gilan province with a valuable historical context to provide a comprehensive guide to design recommendations for indigenous urban residences in the province. Also, reading the architectural patterns of other non-residential historical buildings with different uses can help design and develop traditional accommodations and boutique hotels in this province.

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