

Typology Architecture of the Stone Caravanserais of the Seljuk Period in Qom Province

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Abstract

The suburban caravanserai architecture, considering its environmental and climatic factors, has various patterns in Qom province. The study is related to the caravanserais of the Seljuk period which are limited in number and which have unique structures in terms of physical and architectural features. In Qom province, regardless of research carried out so far on suburban caravanserai architecture, there is still a dearth of studies for a complete understanding, and consequently no accurate typology has been provided for the caravanserai of Qom region yet. Therefore, the typology architecture of caravanserai in Seljuk period is important as a response to the question of what patterns have been followed and what materials were used for the construction? The purpose of this typology is to provide architects with specific patterns in construction. This is a qualitative study conducted through a descriptive-analytic method and sample observation. The samples were selected based on their construction period (i.e., Seljuk), research study and the suburban caravanserai of Qom. The data collection was through field survey and library documents. The results show that division and classification of the suburban caravanserai as regular quadrilateral (i.e., square or rectangle) followed the four-porch construction. This type of caravanserai has a variety of configurations with and without towers; special attention has been given to stone as the main construction material. The entrance to the caravanserai is simple and projects outward from the main façade. The caravanserais are decorated using construction materials that are separated by plaster work from the building façade.

Keywords: Qom Province; Suburban Caravanserai; Stone Caravanserai; Typology

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1. Introduction

In Iranian architecture, caravanserais have a high status, especially along the communication network. The evolution and expansion of caravanserais in Iran in different historical stages have been dependent on social, economic and religion aspects associated with their formation and development (Kiani, 2008: 265). Throughout history, Qom region has been the major corridor area connecting north to the south of the country, due to the specific geographical location as well as numerous communication routes passing through this city.

The fundamental architectural features of caravanserai are a function of environmental, human and physical contexts. Among these, the environmental context is one of the most important elements that provide the underlying classification for architecture. Because of this, especially suburban caravanserai, being away from the city, lacks the condition for its restoration; this has given it a particular importance in the architects' eyes. In architecture, typology can be used as a tool to identify and classify things. The necessity of typology is for differentiating periods and architectural style to identify how architects have built in each period and to achieve common patterns in spatial design of a caravanserai. To understand these designs and patterns means to understand the social relationship that has occurred in the interior space.

The aim of this research is to recognize the existing ideas in the construction of these caravanserais and their typology. Through this, one can achieve the basic principles of restoration according to the basic structures of the building. The samples that have been examined in this study include the Salt Mountain Stone Caravanserai (Arab, 2007: 113-114), Stone Caravanserai of Mohammadabad (Dirkaj) (Arab, 2006: 98-101), Stone Caravanserai of Aliabad (Arab, 2007: 108), and Stone Caravanserai Tolab (Arab, 2007: 113) that belong to the construction of Seljuk period. The research question is what patterns has been followed by the suburban caravanserais in the Seljuk period in Qom region and what materials were used for their construction.

2. Research Background

The typology of caravanserais in different periods has been reviewed by Maxim Siro. In his book, entitled "Iranian caravanserai and small building along the way", he writes: "in the late Sasanian period, two types of caravanserai were known in Iran. The first type consisted of a courtyard surrounded with a wide corridor for the livestock like the caravanserai Darvazgach (plaster gateway caravanserai). The second type comprised a rectangular hall located around the central courtyard and this was the characteristic of Iranian caravanserais. But during the Islamic era, the plan of these two caravanserais was integrated in a manner that the caravans chambers were built around the central courtyard, and behind these rooms a wide corridor was built for the livestock; and like the Parthian and Sassanid palaces in most of the caravanserais two or four porches were built around the central courtyard."

The Iranian architecture of caravanserai varies and the diversity of plans and maps of caravanserais could be divided into different groups. For example, the typology of physical caravanserai includes mountainous area caravanserai, Persian Gulf shore caravanserai and Iranian central courtyard caravanserai that include caravanserais with circular or polygonal shapes, with two or four porches and colonnade hall caravanserais, or caravanserais with miscellaneous plans that differs from other groups in architectural drawings.

It should be noted that there has been no typology for the caravanserai of Qom region so far, and only few features of these historical buildings have been captured in research. In this study, hence, an attempt is made to examine the features of caravanserais, Seljuk architectural style, location and

area, native building materials of the region and its geographical locations, and also to take an effective step in providing a typology of stone caravanserai of the Seljuk period.

3. Historic Geographic Location of Qom

Qom province is among the 31 provinces of Iran, located in the center of the country in an arid and semi-arid area. The itinerary of Abbey Delft introduces Qom as the Islamic city. In addition, Qom province, with regard to the historic pre-Islamic era, enjoys numerous rich architectural sites, monuments and historic hills. According to the archeologist Roman Ghirsham, Qom is the first place on earth that hosted the first people gathering. Therefore, the old city of Qom and its suburbs are associated to the birth of civilization about ten thousand years ago. This was verified after the 1979 revolution, in an archeological excavation in the area of Qomroud in Qom. The excavation works are preserved at the National Museum of Iran (Zendehtdel, 2000).

4. Caravanserais in the Historical Route of Qom Province

The caravanserais of Qom extend on the historical routes from and to the city. The routes are briefly introduced as follows;

4.1. Route from Qom to Tehran and Rey

According to the historical literature evidence and research, there were two main routes that passed from Qom to Rey and the surrounding areas (Siru, 1970: 247). The first and oldest route from Qom was parallel to the river of Qomroud and its eastern margins were towards the village of Qomroud. The second route was constructed during the Safavid and Qajar period. The caravanserais located along these route were caravanserai of Alborz from Safavid and Qajar era, Dalak adobe bridge belongs to the Qajar era, Dalak brick bridge of Safavid era, Dir-Kaj (Stone Castle of Mohammadabad) from the Seljuk period, Deyrgachin of Sassanid era with a fundamental change in the Safavid era, Sadrabad of Safavid and Qajar period, Hoze Soltan of the Safavid and Qajar period, Asgarabad belonging to the Qajar period, Manzariye of the Qajar period, Bagherabad belonging to the Qajar period, Brick caravanserai of Aliabad dating back to the Qajar period, and the Stone Caravanserai of Aliabad of the Seljuk period.

4.2. Qom Route to Khalajestan, Tafresh, Ashtiyan and Hamedan

The following caravanserais that are located along this route are Tolab Caravanserai that comprises two caravanserais of the Seljuk and Safavid period, Tinuj Caravanserai of the Safavid and the Castle of Allah Quli of the Safavid period.

4.3. Qom Route to Kashan and Isfahan

The old Qom road to Kashan has been constructed parallel to the old caravan route. The important caravanserais located along this route are Pasangan, Shurab, Atabaki and Sansan. Only the Pasangan Caravanserai built during the Safavid period is in the vicinity of Qom province.

4.4. Qom Route to Aveh and Saveh

The stone caravanserai Kooh-e-namak (or Salt Mountain) is about 16 kilometers outside the Qom city and towards Togheroud, Gazoran and Aveh and belongs to the Seljuk period. The Aveh caravanserai belonging to Safavid-Qajar period is located in the central province (Arab, 2007: 104).

5. Seljuk Caravanserais in Qom

In the Seljuk period, due to the strong central government, there was economic and commercial prosperity and security in the territory, the trade routes and the monuments. The four-porch construction was one of the styles of this era that was promoted in a variety of buildings; the caravanserai was also constructed with this style, but there were other varieties of style too. An overview of the caravanserai of this period shows dual and multiple designs that appeared sometimes in the defense and military roles and in some cases royal and governmental functions. However, caravanserais showed the outstanding social and economic development of the time. The characteristic indicator of some caravanserais was embodied in the type of plan, and the ornamentation has always remained devoted to this period. Though they were magnificent examples of Safavid era in later periods, these caravanserai designs still remained the same. The reasons for this probably go beyond the architectural features and are manifested in the cultural and social behavior of that period.

In Qom there are 16 caravanserais which are located on the historical route of the city belonging to the Seljuk, Safavid and Qajar era. Among these caravanserais, the stone caravanserais of Mohammadabad, Aliabad, Tolab, Kooh-e-namak are the four unique stone caravanserais of the Seljuk period that are selected as samples of this research.

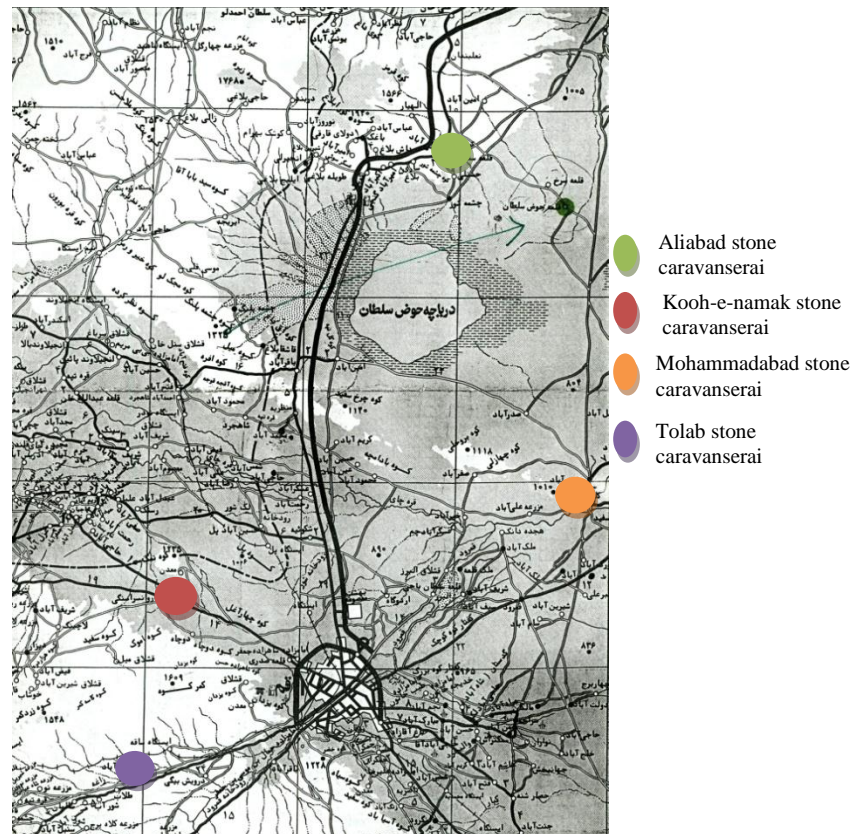


Fig 1 Distribution map of Seljuk caravanserais in Qom Province

Table 1 Study of the stone caravanserai of Seljuk period of Qom province

Caravanserai	Plan form	Courtyard	Chamber	Porch	Tower	Material
Kooh-e-namak	Square	Central	Around the central courtyard	Four porches	Four circular towers at the corners and three towers at the sides	Stone is the main material and only the roof is covered by bricks
Mohammadabad	Rectangle	Central and also newly constructed courtyard on the east side.	Around the central courtyard	Four porches	Four circular towers at the corners and four towers at the sides	Stone is the main material and only the roof is covered by bricks
Aliabad	Square	Central	Around the central courtyard	Four porches	Four semi-circular towers at the corners and four towers at the sides	Stone and brick structure
Tolab (Seljuk)	Square	Central	Around the central courtyard	Four porches	Without towers	All built with stone except one chamber built with bricks

5.1. Stone Caravanserai of Aliabad

The Aliabad Stone Caravanserai is a square structure with a four-porch plan. The deep porches on the sides with rhythm arcade are constructed on the four sides of the courtyard. The southern façade to the entrance to the caravanserai has a portico throughout, which is repeated on other façade. The southeast corner of the structure has a different space as four platforms with domed chambers that have been constructed with the help of frame and stone scaffolding. This structure has been beautifully worked with brick and stone unique in its own kind. The fences of the caravanserai are constructed with gravel stones collected from the surrounding rocks. The structure is surrounded by lime and plasters mortar, and has four massive towers at the corners and three supporting towers in-between the north, east and west side walls. Maxim Siro believes that initially the massive fence was built and later the interior facilities of the caravanserai were designed. This building serves back to the late Seljuk period (Arab, 2007: 107-108).

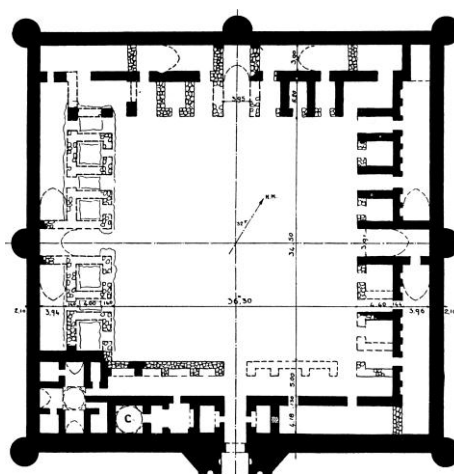


Fig 2 Stone caravanserai plan of Aliabad (source: Maxim Siro, 1970)



Fig 3 Front entrance of the Stone Caravanserai of Aliabad (source: Cultural Heritage Organization of Qom)

5.2. Stone Caravanserai of Kooh-e-Namak

The Stone Caravanserai of Kooh-e-namak has four porches and a square plan. The caravanserai has seven towers, among which the four towers are at the corners of the square and the three towers are located on the middle sides of south, east and west walls of the square. The main entrance is on the north side of the caravanserai that directly connects to the central courtyard. Between each side, there are porches that are recessed like the altar surrounded by a smaller chamber.

The building material used for the walls is stone and brick for roof coating. The decorative elements of the caravanserai are the recessed altar where the ruins of the bricks have been observed. The other decorative elements are the projecting rectangular shape built out of stone around the castle. The entrance to the caravanserai is made of stamp plaster that seems to be related to Patriarch period (Kavoosi, 2014).

The rubble stone materials are used for the construction of the caravanserai with a central courtyard surrounded with chambers. There are porches in-between the courtyard and chamber, and only the foundation still exists.

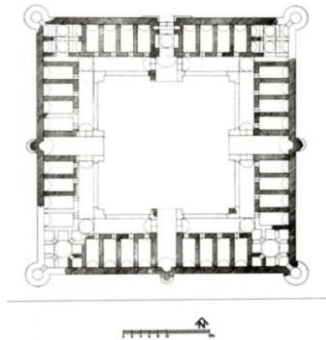


Fig 4 Stone Caravanserai of Kooh-e-namak plan (source: Iranian caravanserai book; 427)



Fig 5 Entrance gateway of Kooh-e-namak Stone Caravanserai

5.3. Stone Caravanserai of Mohammadabad

The Stone Caravanserai of Dir-Kaj (Mohammadabad) has a rectangular shape with a four-porch courtyard and belongs to the group of caravanserais of the central region of Iran. The caravanserai has two courtyards. The rubble stone from the surrounding mountain was used as construction material. It has a central courtyard and four-porch structures. There are four circular towers built at the four corners, and at the middle of each side a blind circular tower is constructed. In total, there are eight towers and all of them are hollow in inside. Generally, the principle for this caravanserai is the same as all the other caravanserais, that has chambers on all the four sides, and at some areas there is the de-loading area for goods. This caravanserai has a front entrance courtyard constructed with square columns which are connected with vaults and arches. The chambers have a vault construction.

The roof is made of bricks, but the entire structure is of rubble stone, except the caravanserai entrance which has been decorated with bricks. The builders of this structure have taken special care for selecting the stone and laying them, and joining the stone with mortar. From the broken section of the west side wall it has been observed that pieces of stone were laid without any mortar. If the whole structure is built like this, it can be understood that the construction method was like a rigid wall and only the exterior and interior elevation was built with mortar. The exterior walls were higher than the chamber ceiling. On all the four sides of the walls, holes were constructed for monitoring or shooting purposes.

In the entrance located on the east side of the caravanserai, a small yard was built. The walls of the yard are built with stone at a lower height but with a high thickness. It seems that the walls and yard are new constructions but the date is not known. This structure belongs to the Seljuk period.

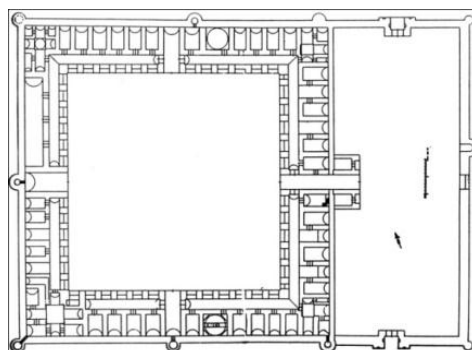


Fig 6 Stone Caravanserai plan of Mohammadabad (source: Iranian caravanserai book: 435)



Fig 7 Entrance gateway of the Stone Caravanserai of Mohammadabad (source: Cultural Heritage Organization of Qom)

5.4. Stone Caravanserai of Tolab

The Tolab Stone Caravanserai consists of two buildings with four porches constructed during the Seljuk and Safavid period. The caravanserai of the Seljuk period has four porches, and the chambers with barrel vaults are located around the porch. At the four corners and the north-eastern side of the structure, there are five vault structures covered with a dome in a skull shape. Stone and plaster mortar material were used for the building construction, except one chamber that was covered with bricks (Report review, Cultural Heritage Organization, Qom, 2002).

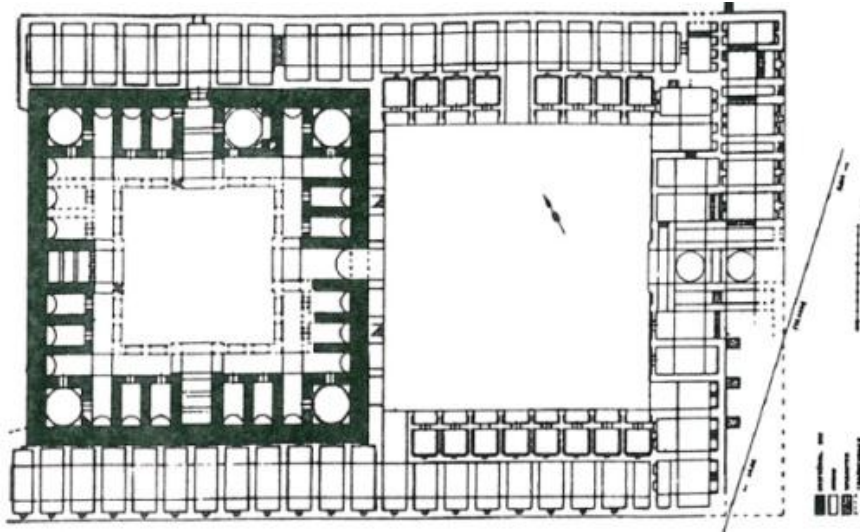


Fig 8 Tolab Stone Caravanserai plan (source: Iranian caravanserai book: 476)



Fig 9 North-west corner of Stone Caravanserai of Tolab (source: Cultural Heritage Organization of Qom)

Typology is the simple description of the characteristic of a building. Table 2, by examining the physical element of the stone caravanserais, has partly determined the building architecture; coordination and matching them with each other can specify the typology of the caravanserai. The caravanserai of this period is like the mosque in the form of four porches and the central courtyard is more similar to the mosque courtyard. Although the plans of these groups of caravanserais are similar, they are different in the details like the interior and exterior shape, entrance gateway, towers and other features.

Table 2 Typology architecture of stone caravanserai of the Seljuk in Qom province

Caravanserai	Typology plan	Courtyard	Entrance	Porch	Porch and tower	Corner plan
Kooh-e-namak						
Mohammad abad						
Aliabad						
Tolab (Seljuk)						

6. Results

The Seljuk era was the brightest period in the development of architecture. The architecture of this period has a special aesthetic aspect and stability. Although thousand years have passed, the ruins of the structure still represent the skills and art of the craftsmen and their awareness to the architectural styles. The boom of art in this period was indebted to the peace and political stability to the Seljuk period when the artists were able to create numerous works of art. One of the distinctive features of the caravanserai was the lack of stalls behind the chambers; the building plan was in the form of four porches, and the decorations were with brickwork and stucco.

The extensive use of stones as the main construction material, which is due to the environmental and climatic conditions, are seen in the Kooh-e-namak, Mohammadabad, Aliabad and old core of Tolab caravanserais in a similar way. But the stones used for Kooh-e-namak Caravanserai are rubble stones, and the rigid layer and stucco are used for the façade, while at Mohammadabad Caravanserai, it is in the form of plated stones and mortar. The Aliabad Caravanserai was built with

gravel and rubble stone and with lime and plaster mortar. The Tolab Caravanserai was built with stone, and the façade is made of brickwork.

Each of the four caravanserais has four porches with a central courtyard, while at Mohammadabad Caravanserai a smaller yard was later added to this structure. The Tolab Caravanserai has the combination of two caravanserais with four porches that were constructed in the Seljuk and Safavid periods.

In these caravanserais, the porches are constructed as a barrier between the central courtyard and the chambers. This feature has been less observed in other caravanserais, displaying a special approach during the Seljuk period. This part has made the space of the chamber as a private space, and it is considered as semi-open and semi-private space.

In the caravanserais of Kooh-e-namak, Mohammadabad and Aliabad, the composition of the tower and fortification followed a constant pattern. The presence of the terrace was another feature in the stone caravanserais of Kooh-e-namak, Mohammadabad and Aliabad. The builders of these historical structures doubled the exterior height of the wall and built a parapet wall and terrace on the rooftop of the chambers. However, these features are not observed in the Tolab Caravanserai.

The coating of the chambers, porches and verandas in these caravanserais are in the form of musical rhythm. The presence of alcove and suburban is another similarity of these caravanserais during the Seljuk period.

Table 3 Comparison of caravanserais in Qom region (source: Arab)

	Stone caravanserais of the Seljuk period in Qom province (Kooh-e-namak, Mohammadabad, Aliabad and Tolab)	Caravanserais of Qom province in different periods (Dereghachin, brickwork Aliabad, HozSoltan, Sadrabad, Dalak bridge, Bagherabad, Manzeriye, Asgarabad, Pasangan, Tinuj, Alborz, Allah gholi)
Plan form	Regular quadrilateral (square or rectangle)	Regular quadrilateral (square or rectangle)
Porch	Four porches	Most of them are two porches and some are four porches and only Bagherabad caravanserai has colonnade hall
Chamber	Surrounded around the courtyard and a barrier exists between the chamber and central courtyard	Around the porch on the first floor and in some on the second floor
Animal Stalls	Without animal stalls	Continuous animal stalls behind the chambers or built separately around the structure
Material	Most of the structure is built with stone materials and covered with brickwork	Most of the structure is built with adobe and brick and some with stone and brick
Tower	All have towers, except the Tolab caravanserai	Without tower, and at times towers were built later
Decoration	The important decoration is in brickwork and stucco	The Safavid caravanserais are less decorative at the entrance, while the Qajar caravanserai have more elaborate decorations like the seven-colour tiling at the Manzariye Caravanserai
In common	The form of plan in all the stone caravanserais in Qom was square or rectangle. The brick and stone materials were used. Brick was mostly used to cover the roofs. The brickwork decoration was at the entrance of the caravanserai.	
Distinction	The main distinction of the stone caravanserai in Seljuk with other periods was the absence of animal stalls and the presence of towers (except the Tolab Caravanserai). Another distinction was the presence of porches (or verandas) around the courtyard. The number of porches and the presence of four porches was the main feature of stone caravanserais in the Seljuk period. The main material of this period was stone, but in other periods other materials were also used.	

7. Conclusion

The ruins of the old caravanserais, many of which are built with strong materials such as stone and brick, indicate that a variety of materials with different qualities were used that were compatible with the geographical condition of each area (e.g., mountainous areas, deserts and wilderness, and wet or dry lands. The results (tables 1 and 3) show that the division and classification of the caravanserais of the Seljuk period have been done as regular quadrilateral (i.e., square and rectangle), four porches and also a variety of configurations with or without towers. The typology of caravanserais was based on the appearance of the entrance (built in a simple form and ahead of the main entrance). The caravanserais were decorated by using structure materials that were separated by stucco from the façade surface. Another distinctive feature of the Seljuk period caravanserai was the absence of animal stalls behind the chambers around the courtyard.

The presence of many mountains in the region of Qom has caused the extensive use of stone as the main construction material. The adherence of the architects of that period shows the use of indigenous materials. The difficulty of changing mud into clay and maintaining it against climatic factors in areas far away from cities caused the use of local materials. One of the architectural features of the stone caravanserais of the Seljuk period was the construction of porches (or verandas) with a wide span approximately five meters with a height of three meters. In the design of the chambers, the entrance span to the chamber is relatively smaller than the porch and the arches are constructed with bricks in a musical form.

Looking at the opaqueness of the towers, one can find that the caravanserais of the Seljuk period did not have the aspect of security and were just built to be in harmony with the other structures or to achieve the confidence of the travelers and caravans, and for this purpose the towers were built for the appearance to the caravanserais. When the caravanserais are observed from the outside, these towers seem to serve as defense weaponry but, in fact, they do not function as security towers. The caravanserais of this period are unique due to the construction of porches that serve as a barrier between the chambers and central courtyard. The common pattern that is achieved through the study of the stone caravanserais of the Seljuk period in Qom region shows that although the architects have used one pattern, all these structures have their own specific characteristics (tables 1 and 2).

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