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Adaptive Reuse of the House of Mirza Mehdi Farrashbashi in Tabriz, Iran

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Abstract
Tabriz and especially the Sorkhab quarter, one of the historical quarters in Tabriz, Iran contains many valuable Qajarid houses. The current research is about studying the architectural characteristics of Qajarid houses in Tabriz to present conservation and revitalization plans for better adaptive reuse of these valued cultural heritage buildings. For this purpose, the house of Mirza Mehdi Farrashbashi who was one of the sons-in-law of Mozaffar ad-Din Shah Qajar has been chosen as a sample to be studied. Although it is important to conserve this house because of its architectural values and its beautiful ornaments, its adaptive reuse can also be useful for the preservation of the cultural heritage of East Azarbaijan, Tabriz in Iran. After studying the architectural values of this beautiful Qajarid house and its ornaments, the process of conservation and revitalization of it has been comprehensively explained throughout the current research for its adaptive reuse.
Keywords: Adaptive Reuse; Conservation; Preservation; Restoration; Revitalization; Tabriz Qajarid Houses; Mirza Mehdi Farrashbashi.

1. Introduction

In understanding the history of Iranian architectural art, the architecture of the Qajar period is very important and despite the studies, there are still vague points that need more research. Traditional houses of Iran with delicate and complex designs derived from strong cultural and religious traditions, have reached the highest level of prosperity and wonder in the Qajar period. The traditional buildings of the Qajar period are excellent examples of the close connection between architecture and decoration. For example, plastering, mirror work, wall painting, wood mosaics, wood lattice and stained glasses were widely used in many buildings of this period (Asbagh, 2011, P.2). Although Tabriz is one of the oldest capital cities of Iran which had so many precious historic buildings, unfortunately, due to the several severe earthquakes that happened during the history which damaged the whole city completely, few historic buildings survived the earthquakes. Even though there are so many beautiful houses that remained from more recent times like the Qajar period in Tabriz, most of them are in danger of being forgotten and abandoned. When these beautiful historic houses have no function and there is no sufficient maintenance, security, care and attention, they face natural disasters and even human interventions more easily and experience deterioration faster and easier. Most of the Qajarid houses that survived in Tabriz have a rather strong structure but the only problem they are facing is lack of maintenance. Conservation, restoration, and adaptive reuse of the abandoned Qajarid houses in Tabriz are essential and important as they belong to all generations from past, current and future as they also belong to all the people around the world. This research is about the adaptive reuse of one of the Qajarid houses in Tabriz which used to belong to “Mirza Mehdi Farrashbashi” who was one of the sons-in-law of “Mozaffar ad-Din Shah Qajar”, the fifth king of the Qajar dynasty in Iran. This building locates in the Sorkhab quarter in Tabriz, capital of East Azarbaijan province in Iran. The Sorkhab quarter was the royal neighbourhood during the Qajar dynasty (1789-1925). This residential house is one of the largest buildings of the Qajar period in Tabriz in which no major intrusion or main interruption was caused serious damage to the building. The most important decoration features in this building are various plastering inside and outside the building, which are still intact and undamaged to some extent, and various types of wooden decorations and ceiling mirrors. The ownership of the building is personal and the name of the last owner of this house is “Sorkhei”, which is registered under the same name. This house has been registered in the list of national monuments with the registration number of 2779 on 09/08/2000 in terms of strong architectural structure and various types of architectural decorations and ornaments, and also the royal personality of the original possessor, Mirza Mehdi Farrashbashi (Asbagh, 2011, P.3). This research aims to revitalize and propose a new function for this house as a cultural centre. Furthermore, the adaptive reuse of this house can be a model for other abandoned houses in Tabriz and also other cities in Iran which suffer from the same problems. The methodology of this practical and historical research is analytical and descriptive analysing a case study in Tabriz city in Iran in the timeline of the Qajar (1789-1925) and Pahlavi Period (1925-1979). The data collection methods of this qualitative and quantitative research are based on library books, trustworthy and first-hand documents and personal interpretation of the author. The limitations of this research are lack of precise documentation, human interventions, and adding several supplementary parts to the original building with the interferences of non-experts.

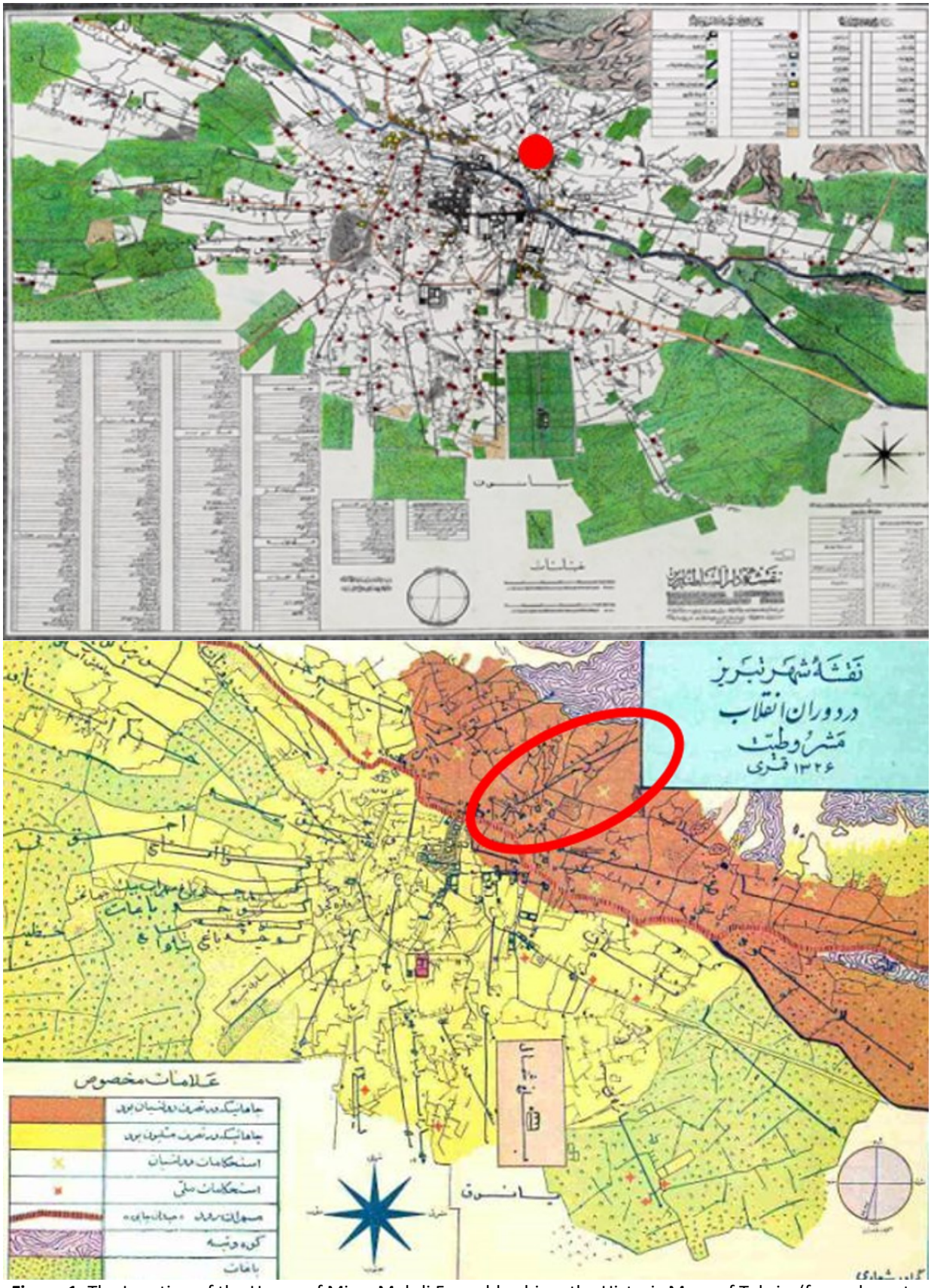

Figure 1. The Location of the House of Mirza Mehdi Farrashbashi on the Historic Maps of Tabriz: (from above to below) The location of the House of Mirza Mehdi Farrashbashi on the Map of Qarajeh Daghi or Dar Al-Saltanah Tabriz in 1880 (Fakhkhari Tehrani, 2006, P.45), The location of the Sorkhab Quarter on the Map of Tabriz in 1908 (Archive of the Cultural Heritage Organization of East Azerbaijan Province, Tabriz, Iran, 2011).

2. Tabriz in the Qajarid Period

Tabriz is the capital of the East Azarbaijan province in the North-West of Iran. It has a cold climate, snowy winters, and rainy autumns while the weather in summer is pleasant (Kasmaei, 2003, P.83). This historical city lost most of the ancient buildings due to the severe earthquakes during history, and just the recent buildings from the Qajar period remained safe and sound. Tabriz and especially the Sorkhab quarter (Figure. 1 Below) was the living place of the royal family of the Qajar dynasty. Although most of the buildings from the Qajar period remained intact and in a good shape of the structure, the only threat for almost all of them is the problem of being forgotten, ignorance and lack of attention and protection. One of the most miserable and severe earthquakes happened in Tabriz during the night of the new year of 1780 (Atazadeh, 2004, P.15). One of the most important projects in Tabriz after the aforementioned earthquake was the construction of the famous "Najafgholi Khani Fortification" around the city which consists of seven gates. In 1798, due to the internal wars around Azarbaijan, the second king of the Qajar dynasty in Iran, "Fath-Ali Shah Qajar" (25 September 1772 – 23 October 1834), reigning from 17 June 1797 until his death, decided to select "the Crown Prince Abbas Mirza" as the ruling governor in Tabriz. Abbas Mirza was involved in various wars throughout his reign with Russia, the Ottomans, and the Afghans and was killed in his last war with Afghans in 1834. Subsequently, king Fath-Ali Shah Qajar nominated "Mohammad Mirza", one of the sons of Abbas Mirza, as the crown prince to govern Tabriz. After "Mohammad Shah Qajar" (5 January 1808 – 5 September 1848) who was the third king of the Qajar dynasty in Iran from 23 October 1834 to 5 September 1848, his son "Naser al-Din Shah Qajar" (16 July 1831 – 1 May 1896) became the fourth king of Qajar dynasty in Iran from 5 September 1848 to 1 May 1896 when he was assassinated. "Mozaffar ad-Din Shah Qajar" (23 March 1853 – 3 January 1907), the son of Naser al-Din Shah Qajar, was the fifth king of the Qajar dynasty in Iran, reigning from 1896 until he died in 1907. "Mirza Mehdi Farrashbashi" was the son-in-law of Mozaffar ad-Din Shah Qajar and with his wife, the daughter of the king, they lived in the house of (recently named) "Sorkhei" in Sorkhab quarter in Tabriz. Sorkhab quarter is one of the Northern neighbourhoods of Tabriz which is adjacent to the "Einali Mountains" on the North, "Mehran River" on the South, "Shotorbaan Neighbourhood" on the West, and "Sheshgelan and Seylaab Neighbourhoods" on the East (Figure. 1 Below) (Khamachi, 2005, P.103). For obtaining more detailed information about the history of Tabriz city during different dynasties you can read the other article of the author titled "A Short Glimpse to the Urban Development of Tabriz during the History" published in the "Journal of Contemporary Urban Affairs, 3(2), 73-83" (Asbagh, 2019).

3. Architectural Pattern of Iranian Traditional Houses in Tabriz in the Qajar Period

Traditional Iranian houses with delicate and complex designs that were derived from strong cultural and religious traditions, have reached the highest level of prosperity and wonder in the middle of the Qajar period. The family is one of the basic units of society in traditional Iranian society, and the house is the main axis of family integration. For this reason, the house was designed to be separate from the outside world, and more attention was paid to the fundamental values of the family in its construction. To enter the house, you have to go through three parts, and each of these three spaces is both a physical experience and has a spiritual meaning in the process of entering the house. Whoever enters the house from outside, experiences these spaces on their own and then steps into the private parts of the house. These parts are the porch, respectively; narrow corridor; and the inner courtyard. The philosophy behind these processes is to maintain complete privacy so that they are not exposed to the outside world. In traditional Iranian houses, spaces are divided into two general categories:

- First category spaces like the yard and room;
- Second category spaces like upper-level rooms, kitchen, W.C. and bathroom (Kateb, 2006, PP.322-340).

Iranian architecture during the Qajar Period was influenced by the baroque architecture in France which cares about the elaborated and detailed ornaments and glamorous decorations. In this period, the old patterns of Iranian architecture evolve to expand the space; spatial creations increase, the diversity of spaces increases, new spaces are created, and spaces become more open and lighter (Bani Masoud, 2009, P.75). Obsolescence of the curved arches and their replacement with semicircular arches in the entrance, façade, portal, and niche, removal of the non-load-bearing false cover from the ceiling of the rooms, and the removal of the attic and sunshades are some architectural features of Qajarid houses (Ghezelbash, 1985, P.9). Using columns aligned with the outer surface of the main façade, creating an element emphasizing the vertical axis of symmetry above the head at the entrance or on the main façade, raising the building by changing the proportions, removing traditional elements and replacing them with similar types, and using new decorative patterns are the other architectural characteristics of the houses in the Qajar period (Jabal Ameli, 1996, P.111). The architecture of Qajar houses in Tabriz is important in many ways, but what makes their architecture valuable is that while using imported elements and being influenced by the architecture of houses from the Western style, the traditional architect is loyal to the principles and regulations of traditional Iranian architecture. The spaces of traditional houses are arranged according to the Iranian model in horizontal and vertical levels and according to the hierarchy, access is made from a public to a private area. The entrance, vestibule, hallway,

porch, and courtyard are the hierarchy of spaces that allow access to the interior of the house. The spaces around the yard that are directly connected to the light and the green spaces of the gardens are established according to other hierarchies. The location of houses in Tabriz and its orientation in the north and south or east and west directions is due to the movement of the sun and its radiation in summer and also the existence of different winds, to which architects in Tabriz have paid special attention. According to the houses in Tabriz, the building was usually built in three directions in the form of Π or two directions in the form of Γ or two directions facing each other and in some cases in one direction. In the houses that are located in three directions, in the form of Π, the main spaces of the building are facing to the south, so that due to the cold climate, the maximum benefit of sunlight can be used. Spaces that are second in terms of performance are located on the east side and service spaces are located on the west side. Buildings that are built in the form of Γ in two directions, their main spaces are fronting to the south, and functionally secondary spaces, such as services and kitchens, are located on the east side. Buildings that are built in a south or southeast direction usually have little infrastructure and often have one or two main living and sleeping areas and kitchen and service spaces in the corner of the yard (Bani Masoud, 2009, PP.168-169). The northern front has been considered in all houses due to climatic issues, proper lighting and the use of the sun in the cold seasons. On this front, the main spaces are located. There is also a full-length porch on this front, which prevents the sun from penetrating in the summer. The western front is of secondary importance due to its back to the bad sun of the west and is more for spaces that are used less. The eastern façade, which is exposed to poor western light, has not been used in houses with two façades, but in the houses built on three façades, the eastern façade has been used. The southern front, in the houses that belong to the early Qajar period and follow the pattern of Iranian introverted architecture, has become a summer residence or has less important spaces such as a warehouse. (Key Nejhad and Shirazi, 2006, PP.164-165).

4. Location and Architectural Characteristics of the House of Mirza Mehdi Farrashbashi

This house was first mentioned in the map of “Qarajeh Daghi” or “Dar Al-Saltanah Tabriz” which was drawn in 1880 (Figure. 1 Above). This map contains a list in the French Language on the left side and the house of Mirza Mehdi Farrashbashi is marked with the number 47 on it (Atazadeh, 2004, P.40). Currently, there are three ways to access the house of Mirza Mehdi Farrashbashi; two ways from the “Seghatoleslam Street” on the right, and one way from “Shahid Madani Boulevard” on the left (Figure. 2) (Asbagh, 2011, P.46). The original part of this house was built in the Qajar period on the northern side of the plan and the southern part was supplementary which was added during the Pahlavi period (Figure. 3). The original plan of the house was drawn by the Cultural Heritage Organization of East Azerbaijan Province and all the plans used in this research are digitalized by the author using the AutoCAD program (Figure. 3 – Figure. 6). Currently, there are three entrances to this house; one on the southern side and two on the east side. There are two yards in this house, the bigger one is called “Outdoor Yard” which is on the southern part of the house. The smaller one is called “Inner Courtyard” which is on the northern part of the house and was used as the private part of the house facing the private rooms like bedrooms and kitchen. As privacy was very important for the Iranian in the Qajar period and there was a hierarchy for the strangers and newcomers to the house, the outdoor yard was used for this purpose and strangers did not have permission to enter the inner courtyard. The main entrance of this house was on the southern side of the plan, using a vestibule, which is a passage usually in a shape of an octagonal between the outer door and the interior of the building. The northeast entrance was added later which opens to the main building and the eastern entrance was added recently for allowing the access of the car using a ramp to enter the outdoor yard (Asbagh, 2011, PP.49, 50).

The area of the field is 1375.50 square meters and the area of the building is 1193.50 square meters (Asbagh, 2011, P.64). The area of the ground floor of the Qajar Building is 490.55 square meters and the area of the first floor of the Qajar Building of the Museum of Poets is 494.72 square meters. The total area of the ground floor of the Pahlavi Building is 208.23 square meters and the total area of the first floor of the Pahlavi Building is 208.50 square meters (Figure. 4) (Table 3 – Table 6) (Asbagh, 2011, PP.163-165).

This building was made by breaks and a masonry vault on the ground floor and a wooden roof on the first floor. Stone was used in the foundation of the building and the ground floor of the building is paved with bricks. The plinth of the building is a combination of stone and brick, which is called “Tbilisi” and is designed to be more resistant to the forces and to prevent the penetration of moisture. The original part of the building had a thatched roof, and currently, it has a gable roof, which was added to the building in the late times. The use of wood in windows and doors is quite evident, and examples of the woodwork and stained glass can be seen in the house. In the whole building, there are two types of stairs, one is contemporary and made of stone, and the second one is a metal staircase that is added to the building in the late period, and the floor of the stairs is covered with travertine stone. The floor of the yard and ground floor is made of old bricks with dimensions of 20 x 20 cm, 10 * 10 cm, and 15 * 15 cm are used in corridors, courtyards, ground floor, and rooms (Asbagh, 2011, P.60).

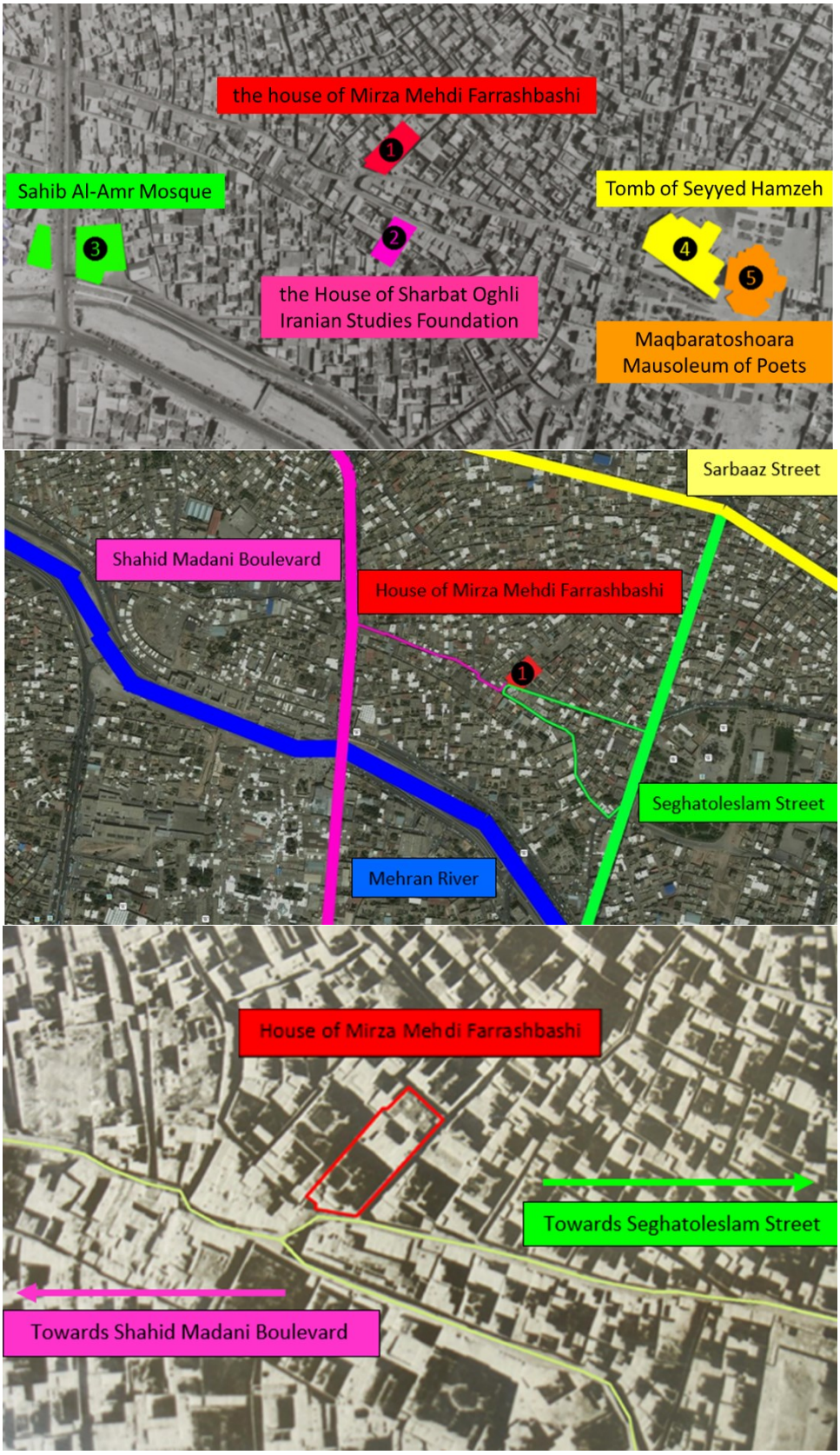

Figure 2. The Location Maps of the House of Mirza Mehdi Farrashbashi: (from above to below) The Location of the Historic Buildings in the Sorkhab Quarter of Tabriz (Asbagh, 2011, P.46), The Access Ways to the House of Mirza Mehdi Farrashbashi in Tabriz (Asbagh, 2011, P.47), The Location and access ways of the House of Mirza Mehdi Farrashbashi in Sorkhab Quarter of Tabriz (Asbagh, 2011, P.48).

5. Conservation and Restoration of the House of Mirza Mehdi Farrashbashi

The word "conservation" has three meanings in the Oxford Dictionary:

- "The protection of the natural environment;
- The official protection of buildings and objects that have historical or artistic importance;
- The act of preventing something from being lost, wasted, damaged or destroyed" (URL 2).

"It is essential to the conservation of monuments that they be maintained permanently" (The Venice Charter, 1964, Article 4). "The conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the lay-out or decoration of the building" (The Venice Charter, 1964, Article 5). "The conservation of a monument implies preserving a setting which is not out of scale. Wherever the traditional setting exists, it must be kept. No new construction, demolition or modification which would alter the relations of mass and colour must be allowed" (The Venice Charter, 1964, Article 6).

In the Oxford Dictionary, the word "restoration" has three meanings:

- "The work of repairing and cleaning an old building, a painting, etc. so that its condition is as good as it originally was;
- The act of bringing back a system, a law, etc. that existed previously;
- The act of returning something to its correct place, condition, or owner" (URL 3).

"The process of restoration is a highly specialized operation. It aims to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents" (The Venice Charter, 1964, Article 9).

In general, the restoration process can be divided into three categories:

- Stage of emergency actions;
- Stage of study and recognition of the building;
- Stage of reconstruction.

Emergency actions stage:

- Diagnosis, consolidation and temporary protection of critical points: temporary coatings, piling, tightening;
- Protecting the privacy and territory of the building, controlling the people entering the building, fencing around the building and placing a security guard;
- Taking care of the trees and plants as assets of the building;
- Preparing photos and maps of the current condition of the building;
- Cleaning the building and collecting garbage from around the building.

The study and recognition stage of the building:

- Examination and accurate inspection of the building;
- Documenting the damages;
- Pathology.

The reconstruction stage:

- Treatment plan or restoration plan including general idea and executive details;
- Prioritization of restoration procedures;
- Implementation of restoration procedures.

5.1. Pathology of the House of Mirza Mehdi Farrashbashi

In general, the disruptive factors that have caused damage in this building are:

- Age of the building: which has caused the ageing of materials over time;
- Climate factors: including snow and rain and changes in humidity, sequential wetting and drying causes the materials to pulverize and the expansion and contraction of water due to frost has caused the erosion and fragmentation of materials;
- Extra loads: Like an earthquake that puts an extra load on a building. Fortunately, after the construction of this building, there was no severe earthquake in the city of Tabriz. But filling the niches and building a bathroom on the first floor has increased the load;
- Human factors: which in this building has damaged the building more than other factors. Human intrusions and various additions without any documentation have caused a change in the original plan and appearance of the building (Asbagh, 2011, P.76).

In a general category, the damages of the building can be named as follows:

- Ascending humidity: which has caused subsidence in the building due to the high level of soil moisture;
- Decreasing humidity: including snow and rain in gutters which causes mortar and brick exhaustion and the collapse of the roof covering and exfoliating of the plaster covering of the main façade, columns and capitals;
- Crack: which is seen as a result of subsidence in the main façade and the walls and the head parts of the doors and the ceiling of the inner rooms;

- Ageing of materials: due to the passage of time, the physical properties of materials decrease;
- Human invasion: the extensions of different times without documentation have damaged the building in terms of architecture (Asbagh, 2011, P.77).

5.2. Restoration of the House of Mirza Mehdi Farrashbashi

To prevent further performance of disruptive factors and to maintain the current condition of the building from the point of view of the start time of protection operations, conservation is divided into the following 3 main categories:

- Simultaneous protection with the establishment and equipping of the restoration studio;
- Preservation and protection during restoration;
- Preservation and protection during adaptive reuse.

Prioritizing the restoration process of this building is summarized as follows:

- Eliminating disruptive factors;
- Strengthening, improving and replacing;
- Removing the worthless extensions and disruptive factors;
- Restoration of the decorations and ornaments of the building (Asbagh, 2011, P.128).

5.2.1. Eliminating Disruptive Factors

- Removal of transverse moisture of the building (water and sewage facilities) and strengthening of the building against groundwater by using moisture insulation and construction of dehumidification channel (to prevent the penetration of ascending humidity);
- Insulation of the roof and implementation of stone cover on the façade walls (to prevent the penetration of descending moisture) (Asbagh, 2011, PP.128-129).

5.2.2. Strengthening, Improving and Replacing

- Sewing of cracks (to repair cracks);
- Repairing the damaged parts of the inner courtyard staircase and the pillar stone and the foot of the outer courtyard pillar (due to old age) that have been lost or pulverized;
- Strengthening and expanding the foundation in the areas of subsidence;
- Replacing the damaged parts of the flooring of the yard with new stones;
- Replacing the rotten bricks of the walls and using cement sand mortar instead of mud among the bricks;
- Replacement of damaged mortars (due to scouring) with new mortar (Asbagh, 2011, PP.131-134).

5.2.3. Removing the Worthless Extensions and Disruptive Factors

- Removal of the additional Pahlavi windows in the south terrace of the Qajar building;
- Removal of the exterior metal stairs attached to the south terrace of the Qajar building from the courtyard;
- Removal of the metal fences attached to the south terrace of the Qajar building;
- Removal of the additional storeroom under the south terrace of the Qajar building;
- Removal of the additional Pahlavi decorations on the inner walls of the south terrace of the Qajar building;
- Moving the two hall windows to the inner courtyard instead of the three adjacent side Pahlavi windows;
- Removal of bath and toilet on the east side of the Qajar building;
- Removal of the adjacent sloping roof adjacent to the northern part of the building and constructing a flat roof with moisture insulation;
- Removal of the wallpapers of the hall and the posters of the south terrace of the Qajar building;
- Removal of the sink, washbasin, plumbing water, and sewage system from the interior of the Qajar building;
- Removal of the open stone from the western kitchen of the Qajar building;
- Removal of the materials of the filled niches of the eastern room;
- Reconstruction of the broken wall above the window facing the inner courtyard after the transfer of the two hall windows;
- Excavation of the floor of the pond house at the location of the cement pond on the ground floor of Qajar building and replacing a stone pond according to the principles of Qajarid architecture;
- Construction of the roof of the first floor of the Pahlavi supplementary building on the southern front of the building (Asbagh, 2011, PP.135-136).

5.2.4 Restoration of the Decorations and Ornaments of the Building

- Restoration of the southern façade plastering that has been damaged due to the passage of time and humidity and temperature fluctuations;
- Restoration of mirror work and plastering of the roof of the south porch of the Qajar building, which has been damaged due to declining and infiltrating moisture;
- Restoration of brickwork decorations on the east and north sides of the inner courtyard (Asbagh, 2011, P.136).

6. Revitalization and Adaptive Reuse of the House of Mirza Mehdi Farrashbashi

"Revitalization" means "the process of making something stronger, more active or more healthy" in the Oxford Dictionary (URL 4). Revitalization means giving a new life to everything (Jokilehto, 1986). Revitalization is the re-formation of life before the death of a building. Sometimes the initial use can be determined for the building with small changes and sometimes with the change of use, the adaptive reuse of the building is done.

"Adaptive reuse" is defined as "the renovation and reuse of pre-existing structures (such as warehouses) for new purposes" in the Merriam Webster Dictionary (URL 1). "Adaptation and reuse of vernacular structures should be carried out in a manner which will respect the integrity of the structure, its character and form while being compatible with acceptable standards of living" (Charter on the Built Vernacular Heritage, 1999, Article 5 of Guidelines in Practice).

6.1. Museum of Poets

The vicinity to the main streets causes easy access to the building, and the large open area on the north part of the building can be used as a parking lot. Vicinity to the historic buildings in the Sorkhab quarter can attract more tourists to this building. Since the initial use of this building was a residential house, at first glance, residential use may be the most logical option for the revitalization of this house. But due to the large area of the building, it is very large and too expensive for a family to afford. To make the least change in the plan of the building, the function of the museum can be suggested, which is a cultural space. After SWOT analysis (Table 1) and due to the lack of enough museums in Tabriz city and because of the vicinity to "Maqbaratoshoara" which is the "Mausoleum of Poets" (Figure. 2 Above), the reuse of this house is considered as the "Museum of Poets". This beautiful Qajarid house is appropriate for reusing as a cultural function like the Museum of poets. In this museum, the poetry books of the poets who were buried in "Maqbaratoshoara" (which is assumed more than four hundred poets), either the old manuscripts or the newly published editions of their books are going to be kept and the biography of the poets, their belongings (if any personal materials of poetry like their handwritings in notebooks, pens, pencils, work table, etc. remains) and sculptures (especially the most recent poets which have pictures to be able to make their sculpture as much similar as possible to their real faces) are going to gathered and shown to the public (Asbagh, 2011, P.159).

Table 1. SWOT Analysis of the House of Mirza Mehdi Farrashbashi as the Museum of Poets (Asbagh, 2011, P.157).

Strengths	Weaknesses	Opportunities	Threats
Possibility of expansion on the north side	Neighbourhood Renovations	Vicinity to "Maqbaratoshoara"	Non-observance of privacy and territory
Possibility to design a parking lot on the north	Lack of documentation	Vicinity to "Tomb of Seyyed Hamzeh"	Ascending humidity
House of Historical Personality	Lack of access to the main plans of the building	Vicinity to "Sahib Al-Amr Mosque"	Descending humidity
Possibility of establishing relationship with "Iranian Studies Foundation"	Destruction of the main vestibule of the building	Vicinity to "Iranian Studies Foundation" or "the House of Sharbat Oghli"	Earthquake
Beautiful plastering & façade decorations	The traffic of cars from the adjacent alley	Vicinity to "Qajar Museum"	Vibrations caused by the movement of cars
Quite strong building structure	Not owning the middle shop	Locating in the historical neighbourhood of Sorkhab	Cold winters of Tabriz (freezing)
Beautiful stained glasses	Human Intrusion	The large area of the house	Human factors

6.1.1. Architectural Spaces of the Museum of Poets

In this plan, the architectural spaces are divided into three main parts: cultural, administrative and service spaces. Cultural spaces are considered in the Qajarid building and administrative and service spaces are designed in the Pahlavi building. Cultural spaces are consisting of museum, library, and computer site. The museum is divided into two main parts: the museum of the books of the poets, and the museum of the biography of the poets. The original old manuscripts and poetry books of the poets are available in the museum of the books. Moreover, there is a book store for the new editions of the poetry books near the library and museum for sale. The library has reading saloons and bookshelves with librarians to help and guide the readers. There is also a computer site with an assistant and computers connecting to the internet to help the visitors to find the list of the books available in this library easily. They can also have access to the PDF files of these books and listen to the audiobooks of poetry using the computers. Additionally, there is a paper conservation room for the repair of historical books. Administrative spaces are containing the manager's room, employers' rooms, secretary's room, and assistant manager's room. Service spaces are consisting of a kitchen, security, buffet, traditional teahouse, prayer rooms, and W.C for ladies and gentlemen (Table 2). In general, cultural spaces are located in the Qajar building and office and service spaces are located in the

Pahlavi building (Figure. 3). The Museum of Poets' Biography and the Museum of Poets' Objects are considered on the ground floor of the Qajar building and the library and reading rooms are on the first floor of the Qajar building. Administrative, religious and sanitary spaces are located on the ground floor of the Pahlavi building and a traditional teahouse is located on the first floor of the Pahlavi building (Figure. 4) (Asbagh, 2011, PP.159-160). The structure of the building is currently in a good shape and the lighting of the building especially on the first floor are appropriate for a museum and library (Table 4). The spaces on the ground floor of the Qajarid building need artificial lighting during the day due to the lack of vast windows (Table 3) (Figure. 4 – Figure.6). Traditional brick with mortar is recommended for designing the exterior elevation of the building in horizontal and vertical lines with 90 degrees and 45 degrees (Figure. 5). Transparent tables and desks are suggested for furnishing and neutral colours are better for the flooring (Figure.7). In Table 3 – Table 6 the quality of the spaces in the museum of poets are shown on each floor of the Qajar and Pahlavi building.

Table 2. The Diagram of the Spaces of the Museum of Poets (Asbagh, 2011, P.161).

Museum of Poets	**Cultural Spaces**	Museum	Biography	Biography & Poetry of Poets	
				Sculpture of Poets	
				Belongings of Poets	
			Books	Historic Books	Reading
				New Books	Sale
			Paper Conservation		
		Library	Reading Rooms		
			Book Shelves		
			Librarians' Desks		
		Computer Site	Computer Site Assistant's Desk		
			Computer Desks		
	Administrative Spaces	Manager's Room	Secretary's Room		
		Assistant of Manager's Room			
		Employers' Room			
	Service Spaces	Religious Spaces	Ladies' Prayer Room		
			Gentlemen's Prayer Room		
		Hygienic Spaces	Ladies' W.C		
			Gentlemen's W.C		
		Other	Traditional Teahouse		
			Kitchen		
			Security		
			Stairs		

6.1.2 The Mechanical Facilities of the Museum of Poets

Sanitary facilities (Ladies' and Gentlemen's W.C) are designed at the end of the building on the southeast side of the Pahlavi Building to connect the heavy sewage directly to the urban sewage system in the alley and to minimize the damage of the floor of the building as much as possible. Furthermore, the kitchen is designed next to the W.C services so that the complex of wet spaces can be organised in one place and the water piping route and finally the environment exposed to moisture can be reduced. The kitchen of the traditional teahouse is also located on the first floor in the space above the kitchen and toilets on the ground floor so that the water and sewage pipes rise vertically from the duct designed on the northeast side of the kitchen (Figure. 4). The gas pipe is located near the emergency exit where the package is also installed. A fire extinguishing system is considered in the form of powder sprinklers due to the existence of the reading spaces of the library and the historic and precious books. All pipes of electrical and mechanical installations that pass through the dehumidification ducts are insulated with Kaiflex insulation. Due to the cold climate of Tabriz, the need for a heating system is more essential than a cooling system. The fan coil unit needs an engine room while the heater dries the air and the soot of the heater damages the walls. "ThermaSkirt" is used for the heating system of this museum as radiators are taking much of the wall space and cause dust marks on the walls and fail to distribute the heat in the whole room evenly. ThermaSkirt is one of the under-floor heating systems which is a patented aluminium profile radiating heat into the room with warm water passing through the hidden pipes moulded into the back of the skirting board. It has different sizes, colours and finishes which can match any interior and mostly suits the historic buildings when the interior designers prefer to skip the bulky radiators disturbing the authenticity of the original building. ThermaSkirt system is easily installed and cause less damage to the buildings especially they are preferred to be used in historic buildings because of its high efficiency, good quality in heating the space evenly and less volume and damage to the building (Asbagh, 2011, P.175).

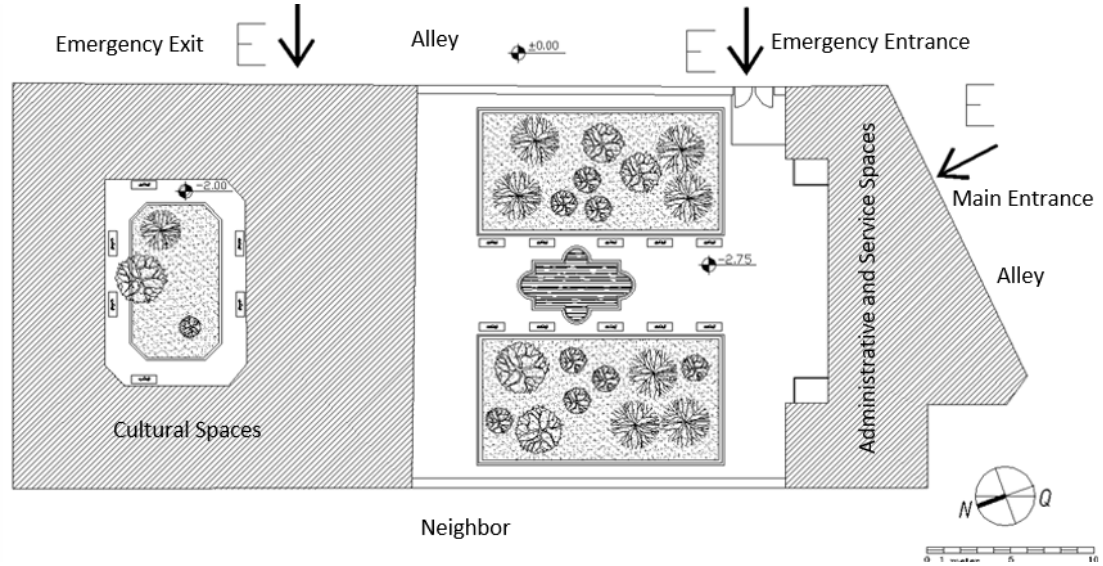

Figure 3. The Designed Site Plan of the Museum of Poets (Asbagh, 2011, P.166).

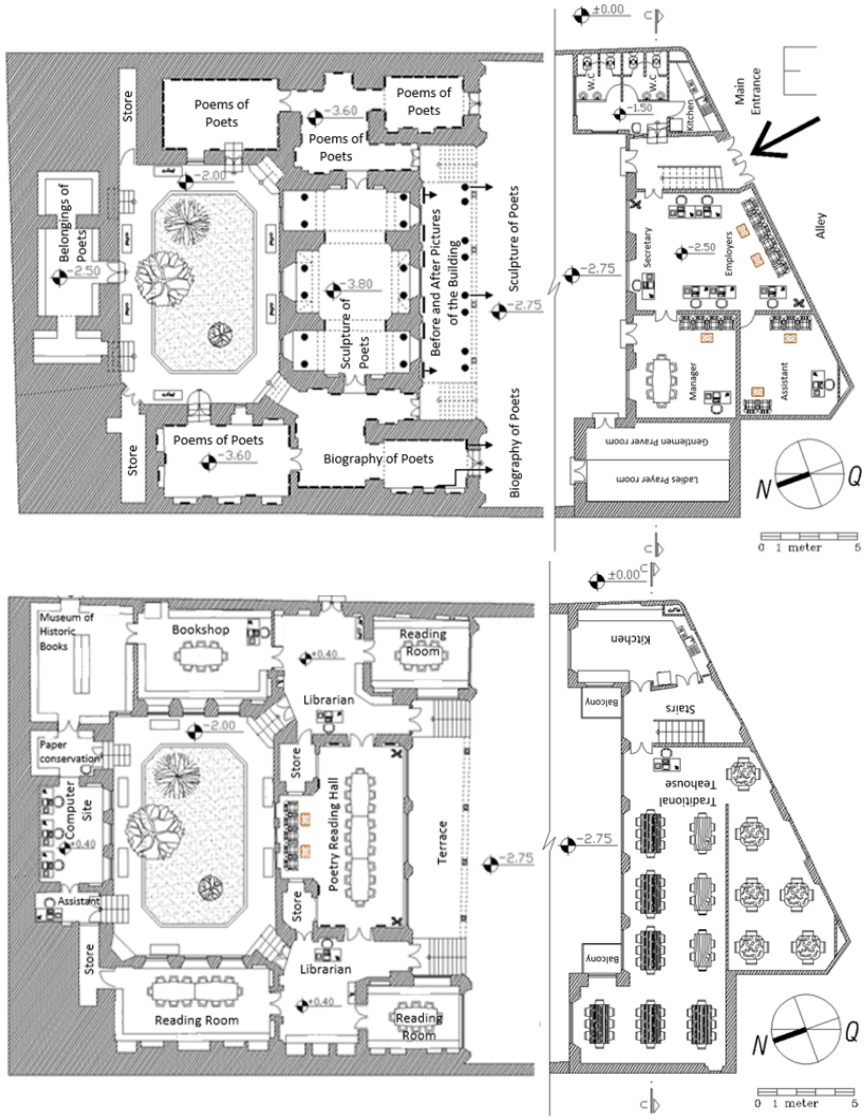

Figure 4. The Designed Plans of the Museum of Poets: (from above to below) The Designed Plan of the Ground Floor of the Museum of Poets (Asbagh, 2011, PP.168, 172), The Designed Plan of the First Floor of the Museum of Poets (Asbagh, 2011, PP.170, 174).

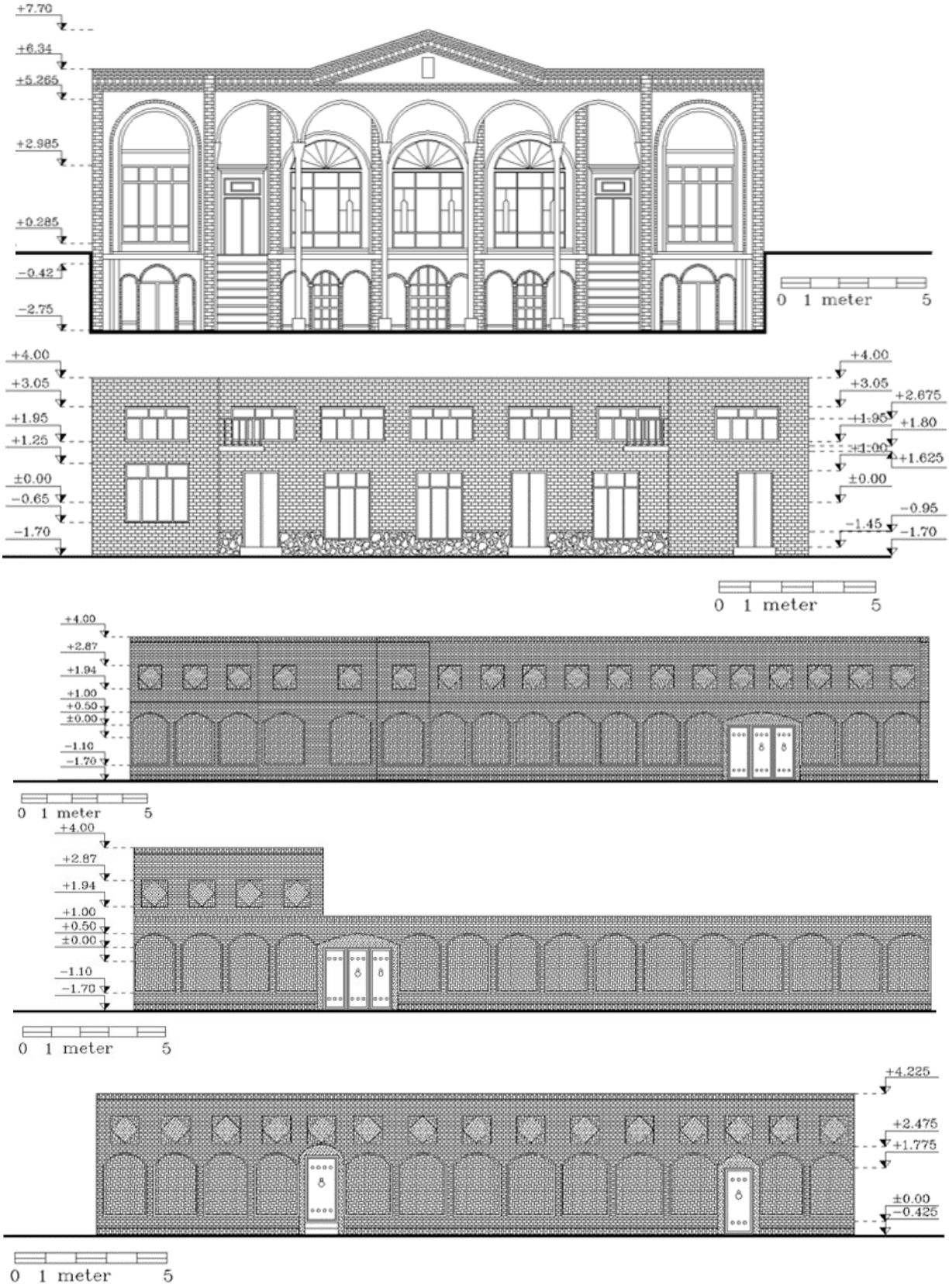

Figure 5. The Designed Elevations of the Museum of Poets: (from above to below) The Designed South Elevation of the Qajar Building of the Museum of Poets, The Designed North Elevation of the Pahlavi Building of the Museum of Poets, The Designed South Elevation of the Pahlavi Building of the Museum of Poets, The Designed East Elevation of the Pahlavi Building of the Museum of Poets, and The Designed East Elevation of the Qajar Building of the Museum of Poets (Asbagh, 2011, PP. 143, 145).

Figure 6. The Designed Sections of the Museum of Poets: (from above to below) The Designed A-A Section of the Qajar Building of the Museum of Poets, The Designed B-B Section of the Qajar Building of the Museum of Poets, The Designed C-C Section of the Pahlavi Building of the Museum of Poets (Asbagh, 2011, PP. 145, 146).

Figure 7. The Designed Interior of the Museum of Poets: (from right to left) The Interior of the Traditional Teahouse on the First Floor of the Pahlavi Building of the Museum of Poets, The Interior of the Administrative Room on the Ground Floor of the Pahlavi Building and the Ground Floor of the Qajar Building of the Museum of Poets (Asbagh, 2011, PP.195, 196).

Table 3. The Quality of the Spaces on the Ground Floor of the Qajar Building of the Museum of Poets (Asbagh, 2011, P.163).

Name of the Space	Area (m2)	Lighting System	Ventilation	Access from
Biography of Poets	12.99	Natural - Artificial	Natural	Outdoor Yard
Biography of Poets	23.31	Natural - Artificial	Natural	Outdoor Yard
Biography of Poets	23.46	Natural - Artificial	Natural	Inner Courtyard
Biography of Poets	56.42	Natural - Artificial	Natural	Outdoor Yard
Biography of Poets	12.10	Natural - Artificial	Natural	Outdoor Yard
Biography of Poets	26.70	Natural - Artificial	Natural	Outdoor Yard
Biography of Poets	26.58	Natural - Artificial	Natural	Inner Courtyard
West Storeroom	7.77	Natural - Artificial	Natural	Inner Courtyard
Belongings of Poets	8.05	Artificial	-	Inner Courtyard
Belongings of Poets	16.18	Natural - Artificial	Natural	Inner Courtyard
Belongings of Poets	7.17	Artificial	-	Inner Courtyard
East Storeroom	4.72	Natural - Artificial	Natural	Inner Courtyard

Table 4. The Quality of the Spaces on the First Floor of the Qajar Building of the Museum of Poets (Asbagh, 2011, P.164).

Name of the Space	Area (m2)	Lighting System	Ventilation	Access from	Capacity	Standard
East Reading Room	19.75	Natural - Artificial	Natural	Outdoor & Inner Courtyard & Emergency Exit	8Student/ 6Reseracher / 10Reader	2.32m Student/ 3m Researcher/ 2m Reader
East Librarian Desk	32.85	Natural - Artificial	Natural	Outdoor & Inner Courtyard & Emergency Exit	-	-
Bookshop	34.99	Natural - Artificial	Natural	Outdoor & Inner Courtyard & Emergency Exit	-	-
Museum of Historic Books	32.78	Natural - Artificial	Natural	Bookshop	-	-
Terrace	32.30	Natural - Artificial	Natural	Outdoor Yard	-	-
Poetry Reading Hall	51.32	Natural - Artificial	Natural	Outdoor & Inner Courtyard	-	-
East Storeroom	4.24	Natural - Artificial	-	Outdoor & Inner Courtyard	-	-
West Storeroom	4.10	Natural - Artificial	-	Outdoor & Inner Courtyard	-	-
West Librarian Desk	26.33	Natural - Artificial	Natural	Outdoor & Inner Courtyard	-	-
West Reading Room	15.72	Natural - Artificial	Natural	Outdoor & Inner Courtyard	6Student/ 5Reseracher / 8Reader	2.32m Student/ 3m Researcher/ 2m Reader
North Reading Room	30.90	Natural - Artificial	Natural	Outdoor & Inner Courtyard	13Student/ 10Reseracher / 15Reader	2.32m Student/ 3m Researcher/ 2m Reader
North Storeroom	5.32	Artificial	-	North Reading Room	-	-
Assistant of Computer Site	5.28	Natural - Artificial	Natural	Inner Courtyard	-	-
Computer Site	17.06	Natural - Artificial	Natural	Inner Courtyard	-	-
Paper Conservation	7.84	Natural - Artificial	Natural	Inner Courtyard	-	-

Table 5. The Quality of the Spaces on the Ground Floor of the Pahlavi Building of the Museum of Poets (Asbagh, 2011, P.165).

Name of the Space	Area (m2)	Lighting System	Ventilation	Access from
Kitchen	7.07	Artificial	Ventilator	Main Entrance & Outdoor Yard
Ladies' W.C	5.81	Artificial	Ventilator	Main Entrance & Outdoor Yard
Gentlemen's W.C	5.70	Artificial	Ventilator	Main Entrance & Outdoor Yard
Security	6.88	Natural - Artificial	Natural	Main Entrance & Outdoor Yard
Main Entrance	13.92	Natural - Artificial	Natural	Main Entrance & Outdoor Yard
Employers' Room	46.88	Natural - Artificial	Natural	Main Entrance & Outdoor Yard
Assistant's Room	25.00	Artificial	-	Employers' Room
Manager's Room	28.00	Natural - Artificial	Natural	Outdoor Yard
Gentlemen's Prayer Room	13.48	Natural - Artificial	Natural	Outdoor Yard
Ladies' Prayer Room	16.28	Natural - Artificial	Natural	Outdoor Yard
Duct of Kitchen	0.45	-	-	Kitchen
The duct of Assistant's Room	0.43	-	-	Assistant's Room

Table 6. The Quality of the Spaces on the First Floor of the Pahlavi Building of the Museum of Poets (Asbagh, 2011, P.165).

Name of the Space	Area (m2)	Lighting System	Ventilation	Access from
Kitchen	25.99	Natural - Artificial	Ventilator	Stairs
Dividing Space	16.52	Natural - Artificial	Natural	Stairs
Traditional Teahouse	143.25	Natural - Artificial	Natural	Stairs
East Balcony	3.28	Natural - Artificial	Natural	Kitchen
West Balcony	3.14	Natural - Artificial	Natural	Traditional Teahouse
Duct of Kitchen	0.42	-	-	Kitchen

7. Conclusions

There are so many beautiful historic houses in Tabriz which are unfortunately under the threat of abandoning and being forgotten. Due to the lack of maintenance and function, these precious cultural heritage buildings are facing the danger of natural decay and sometimes even human devastation more easily. The adaptive reuse of these historic buildings can be done after the conservation and restoration process according to the physical potentials of each building. The function of the museum is one of the best alternatives for the adaptive reuse of valuable architectural heritage with less interference and fewer interventions. The adaptive reuse of the house of Mirza Mehdi Farrashbashi as the museum of poets can be a pattern for the abandoned historic houses in Tabriz and also other cities in Iran which can be conserved, restored and given an appropriate function according to the potentials of them. As the historic buildings belong to all the generations: past, current and future and similarly they belong to all the people all over the world, the conservation, restoration and adaptive reuse of them can prolong and also improve the quality of their life. With adaptive reuse and revitalization of these forgotten but precious historic buildings, the tourist attraction and permanent maintenance of them, the improvement of the neighbourhood and accordingly the upgrading of urban architecture is inevitable.

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Conflict of Interests

The author declares no conflict of interest.

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