



The principles of designing domicile based on Iranian gardens architecture (case study: domicile-garden design in Shiraz)

Zahra Adnani

**Master of Architecture, department of Architecture, faculty of Art & Architecture, university of Tehran, Kish international campus, Kish, Iran*

Abstract: Travelling has long been an astonishing concern of the people from various lands. Some of the trips are taken for amusement and some others are carried out for pilgrimage purposes. Therefore, the need for temporary housing is a case which is of a great concern to the people visiting various cities. Thus, in this regard, thinking of providing accommodation which is best representative of the Iranian splendid culture can be very effective. The structure and the principles of designing Iranian garden with its special architecture which has always been of a great and lofty stance within the Iranian territory can be envisioned as an appropriate alternative for providing the travelers with stays. Since any sort of creation is in pursue of forming a new idea and accordingly takes place with a special purpose and such a thought requires recognition, in the present descriptive research we have dealt with designing a residential space in such gardens through taking advantage of Iranian gardens landscapist point of view in order for such a space to be, besides providing the travelers with mental and physical comfort, a representative of the Iranian culture and architecture.

Keywords: domicile, Iranian garden, Iranian architecture, Shiraz

INTRODUCTION

There is a need for preparatory works to be undertaken in order for the tourism to be developed and promoted without which the principled and original tourism cannot be surely fulfilled. Such preps and preliminary requirements are termed infrastructure. Accommodation installations are among the most fundamental infrastructures in such an industry. In Iran, the tourism activists have always been confronted with problems such as the deficits in the accommodation facilities complying with the environment in ecotourism regions (Hashemi and Khosravi, 2016).

Furthermore, the mankind began its life in the paradise since the very beginning of life, but, nowadays, an issue that matters is the declining relationship between the human beings and the nature (Bemaniyan et al, 2010). There are gardens in the vast Iranian territory that are highly valued from the perspectives such as art and architecture and these gardens are considered as worthy patterns from which the Iranian garden-making has been copied in the other lands, particularly in the Islamic lands (Motadayyen, 2010). In fact, the Iranian garden is a channel which opens into the innermost layer of thought and imagination and it should be regarded as a wise interpretation of the Iranian ideology (Bemaniyan et al, 2010).

According to what has been mentioned up to the present point it can be concluded that blending the Iranian garden making structure, which has always been accompanied with some sort of a sense of comfort and tranquility, and designing principles can be highly effective for designing a place of residence. Therefore, in the current study firstly the Iranian garden structure is analyzed and then the intrinsic principles are

determined and finally these principles will be applied for designing a dwelling place in a site located in the northern section of the city of Shiraz.

1. Study background:

1.1. the basic principles of designing an Iranian garden:

In a simple definition, the main elements constituting the Iranian garden geometry can be recounted as follow: broadness of the view, introversion, water channels, rectangular geometry, symmetry and centrality. The presence of each of these elements plays a considerable part in the Iranian garden spectacular attraction. The existence of a route along which the garden is stretched and therefore is considered as the garden's spinal column where the major functional components and the main landscape forming elements are situated, the use of water as a sacred symbol, paying a lot of attention to the geometrical shapes and the creation of square shapes to exhibit the simplicity with which the garden parts are built and the determination of the exact places where the trees should be planted in such a manner that the tree rows are visible if looked at from any angle, the use of symmetry as the most perfect form of equilibrium and taking advantage of centrality especially regarding the belvedere are all underlining the great attention paid by the architects to designing such buildings.

The entire array of the elements existing in the traditional homes can be considered for the Iranian gardens. Elements such as platforms, entrance façade, entrance door, octave galleries, corridors, porches, yards and the surrounding rooms, pools and small ponds, kitchen, WCs, the building construction orientation, the little garden's depth, roof, garden entry, winter stays, summerhouse, terrace, stove-room, downstream, Cellar (shavadan), seraglio, Shanashil (Mashrabiya or wooden balcony with shutters), water room and the windward room are all decorative features of the traditional buildings including the gardens (Mollahoseini, 2011).

But, there are also other cases which are taken into consideration in the Iranian traditional designs, in general, and in the gardens, in particular, for instance, versatile reconciliation of the garden and the buildings. In fact, in Iranian garden we are always bearing witness to a phenomenon of transition from a space to another. Essentially, one of the most important features of the Iranian garden architecture is its building conciliated with the garden and these two are sometimes so much fused that one cannot find out where the garden-making work has begun and where it ends. Such a relationship and such a fusion happen through binding the spatial connections to the garden constituents. The building in the Iranian garden does not dissect the garden space rather the human view passes over it and it is most often integrated with the spatial periphery of the garden. Also, the garden space finds its way into the building and no clear distinction or distance can be defined between the two. The water flows in a stream stretched from inside the building into the garden. The building reflection in the water is per se a sort of building-garden fusion which is enumerated as one of the most important remarks in the Iranian garden-making style (Shahcheraghi, 2012).

In respect to the entrances, in the first sight it is perceived in Iranian garden that the entrances are shaped into buildings. Such a building is usually called the mansion's façade and it serves as a place where the guards and the gardeners and the other service laborers usually dwell (Na'eema, 2006). In a great many of the gardens used for residence by the governors or the ordinary people, the façade served purposes such as the ones mentioned in the following words: preserving security and privacy, ensuring humble and calm entering, they usually were built in an indirect way, providing for slow and gradual entering, attracting the others' attention, meanwhile calling out for invitation and openness.

Regarding the rooms, the following photo is well expressive of the relationship between them and the garden space.

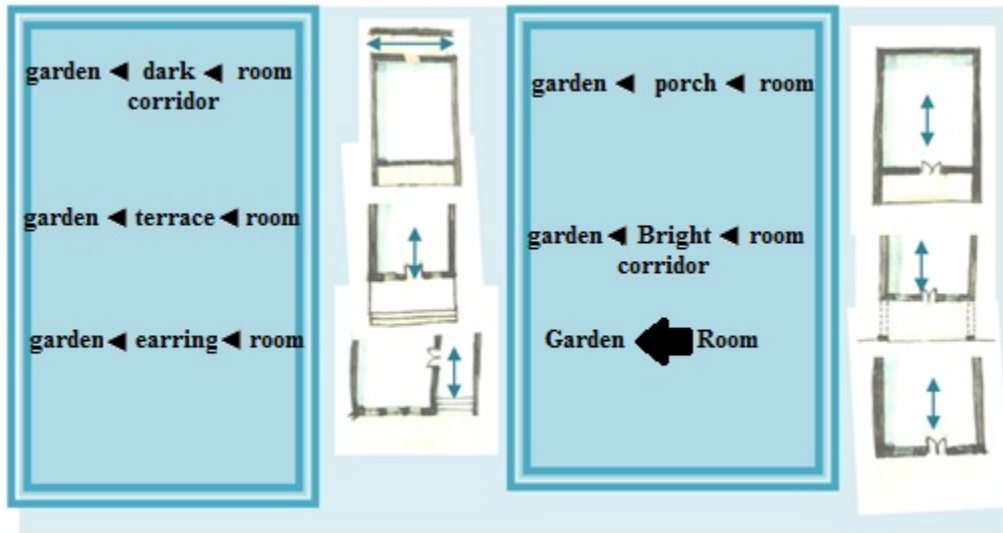


Figure 1: the survey of the different relationships between the garden and the rooms (source: the author, 2013).

The designing of the porch as a semi-open interface between the open and closed spaces, better said the filled and empty spaces, is in a manner to decrease the heat, on the one hand, and to soften the intensity of the light passing through the five-windowed room, on the other.

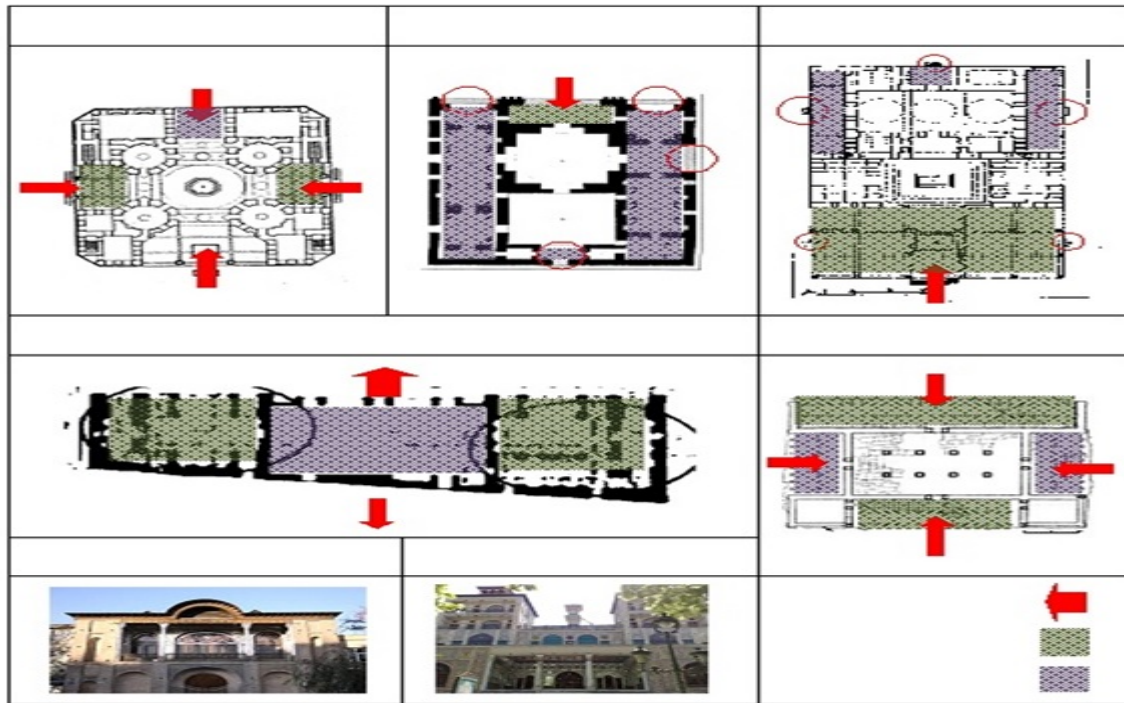
The corridor as accompanied by the yard was the major connective vein of the house designed with a narrow, medium and broad width considering the general plan of the house and it could be dark or bright. Dark corridors were substantially applied for connecting the house's outer space to the interior loci or they were usually placed between the rooms. Bright corridor was the connector joining the yard and the interior room spaces and it was connected on the one end to the room and on the other end it opened to the yard.

The moonlit balcony rooms were also built in several floors to from the one side be served as a high ground for having a clear view of the garden pool and provide a view of the city for the residents and on the other end they were made as steps towards getting closer to the proximity of the alcove and the private little gardens which induced the onlookers with a zeal to ascend higher.

Among the other spaces existent in the garden, according to the width, type and function of the garden, one can point to the barn, storage, tearoom, bathroom and cistern the placement of which followed the major features of the garden in most of the cases (Shahcheraghi, 2012).

Among the other very important cases in the gardens were the villas (figure 2). The villa or the main building was usually built in the middle of the garden and it was used for living. The villas sometimes divided the garden into two parts, a wider section which used to serve general purposes and a smaller part which belonged to the family living in the villa. In the central part of the villa there was usually built an octagonal space in which a pond or a fountain was installed. The villas were usually designed in a square, rectangular, circular or octagonal format.

Figure 2: the survey of the relationship between the villas and the garden (Source: the author, 2013).



One of the features and attributes of the designing path in the Iranian architecture is that there are various and different components combined therein and it has been made clear that how versatile and skilful the Iranian architecture takes action to blend the elements in order to create innovative and beautiful views. All of the Iranian gardens testimony such a claim.

1.2. The principles of designing a dwelling place:

Nowadays, tourism and travelling are proposed as the main subject of the human beings' life. Our country is one of the few ancient countries with brilliant and worthwhile history which has not been made known to the people of the world they way it deserves.

In the past, there were buildings along the paths and the routes to the villages and the cities for the passengers and the travelers to nestle, such as caravansary, inn, awning, berth shelters. Such buildings are still found along the desert paths (Pirniya, 2006). In Islamic era, the creation of such buildings with variegated characteristics in every village and city was developed and grown giving them names such as "inn" and "caravansary". The historical sources narrate that such caravansaries were founded by the Achaemenids who constructed them in a square or rectangular shape with the use of masonries such as adobe and bricks and they usually were surrounded by rooms and barns (Kiyani, 1987).

The guests comfort and peacefulness is the main objective of the new domiciles designers such as hotel designers. That means the creation of an environment which is cozy, happy and familial and it truly possesses the same privileges and facilities of the family life and the individual and the collective spaces of which can be responding to the physical and perceptive needs of the newcomers. Generally, designing such spaces should be in a manner that a more humane relationship can be provided. In fact, such a space should save the guests from the crowdedness and the discomforts of the urban machine life and it should be tranquilizing in every respect.

The most important issue here is that the entire and every single one of these domiciles and stays should adhere to the required regulations and they are all evaluated based on the following fivefold case: building issues, the domicile's installations and its belongings, services and equipments, safety, hygiene and stability; food and human workforce skills and education (Shahrudi & Seyyediyani, 2010).

According to the abovementioned regulations, Shahrudi and Seyyediyan (2010) enumerate some of the regulations which are important in contextual designing and planning of the dwelling places, which are:

1. Green areas;
2. Waiting spaces, or lobbies;
3. corridors and stairways;
4. Access to the outside for reaching to the public places;
5. Differentiated use of the elevators for service crews and for porters carrying the luggage;
6. An incoming air ventilator in every room (which are usually juxtaposed by locker room, WC and bathroom);
7. Beautiful landscapes by making use of the balconies and terraces and the emphasis on the emergency exists role therein;
8. The corridors should be 1.80 meter wide;
9. The rooms should be equipped with 1.5×1closets;
10. The public rooms' windows should not be opened towards one another;
11. Escape stairs in case of emergencies such as fire and other dangers;
12. At least one window for getting the natural light entered to the room and for air ventilation purposes;
13. The rooms should be preferentially opened to the inner skylight (on the condition that the skylight is not smaller than 12 square meter in its area);
14. The public restrooms should not be accessed through public areas such as lobby (they should be accessed by means of the corridors);
15. The men and women WCs and prayers rooms should be well-separated;
16. The prayers rooms should be built in places far from the crowd and noise.

1.2.1. The principles and the criteria for designing hotels:

In this section we point out the principles and the criteria pertaining to the first and second class hotels which are currently available in the country:

- The land to be used for designing and constructing a hotel should be in the service, administrative, business and residential area of the detailed urban master plan and it should have a direct access to the streets and the alleys and the least street and alley allowable width is 8 meters. Also, such units should be constructed away from the places such as crowded and noisy repair shops, gas stations, military centers, educational places, hospitals and their likes.
- The hotel's entry gate should be acceptably wide and in case that the geographical conditions allow, two entry gates across from one another within an appropriate distance should be used.
- The entry stairs and the connective stairways should not be above 18 cm high.
- The hotels' welcoming spaces should be including the manager's office, reception, lobby (waiting room and sitting room), men and women-specific WCs, telephone cabin and prayers room.
- The entry part area, disregarding the counter, should not be less than 2 square meters.
- The lobby area, disregarding the reception, should be 1.5 square meters per every five beds in second class hotels and the same per every four beds in first class hotels.
- In case that the other floors are also equipped with lobby, the rooms should be designed in such a manner that the crowd in the lobby would cause no disturbance to the guests.
- It is not necessary for the hotels to have restaurants, but in case that there is one there would be a need for a square meter area per every two beds. The restaurants which serve the guests from outside besides the ones residing in the hotel need to be led outside through independent gate(s) other than the main entry of the hotel. In the meantime there is undoubtedly a requirement for much bigger and more appropriate restaurant under such circumstance of offering services to the guests from both inside and outside the hotel.
- The minimum area of the kitchen should be one fourth of the restaurant area.

The conditions of constructing a parking lot and its entry gate requirements:

1. Going in and out to and from a parking should take place via a single entry.
 2. The minimum parking lot height allowable is 2 meters.
 3. The minimum allowable parking lot entry ramp width is 3.5 meters.
 4. There is a need for a 3×5-meter space in the parking lot per every car.
 5. A 5-meter space should be considered for the automobile maneuver width to the sides.
- The width in all of the rooms of the hotel should not be smaller than 2.90 meters.
 - Selecting the number of the parking lots should be based on the city master plan or the detailed comprehensive plan of the place it has been constructed and established in; otherwise a parking lot should be built per every 10 beds. In any case, the parking lots should have rooms for letting in at least four cars.
 - 80% of the rooms should be equipped with 2 beds and 50% of the rooms with one bed should have bathrooms.
 - The minimum allowable area for a 1×2-meter two-bed room, disregarding the space allocated to the bathroom and the corridor, should be 10 square meters.
 - The guest room height in horizontal roofs should not be less than 2.60 meters.
 - The rooms should be equipped with nested closets with the minimum depth of 60 cm and a height of 2 meters and a length of 1 meter.
 - In case that there are balconies and terraces the minimum parapet height should be one meter. Also, the wall separating two balconies or two terraces, meanwhile being in accord with the outward appearance of the building, should be at least 1.80 meters high.
 - The WCs inside the rooms include the restroom and the shower, with an area of at least 3 square meters.
 - The public WCs should be considered as one woman-only and one men-only per every ten beds.
 - The public WCs should be oriented away from the entrance door and the inner space of the restrooms should not be seen from the outside.
 - There should be considered an appropriate room for storing and keeping the cleaning tools, sheets and blankets, on every floor if possible.
 - The distance from the floor to the false ceiling in the WCs in the hotel rooms and in the public WCs should not be smaller than 2.20 meters.
 - The steps width in every floor should not be less than 1.10 meters.
 - The escape stairs are compulsory in the hotels built in two floors on the ground level. And, they should be predicted in open or closed spaces (with two safety doors).
 - In case that the hotel is also equipped with a restaurant, a workers' locker room equipped with individual commodes and WCs (shower, restroom and toilet) is necessary.
 - The workers resting place should be adjacent to the kitchen and appropriately according to the status of the hotel.
 - No dwelling place should be taken into consideration and predicted for the guests on the roof (Shahrudi & Seyyediyan, 2010).

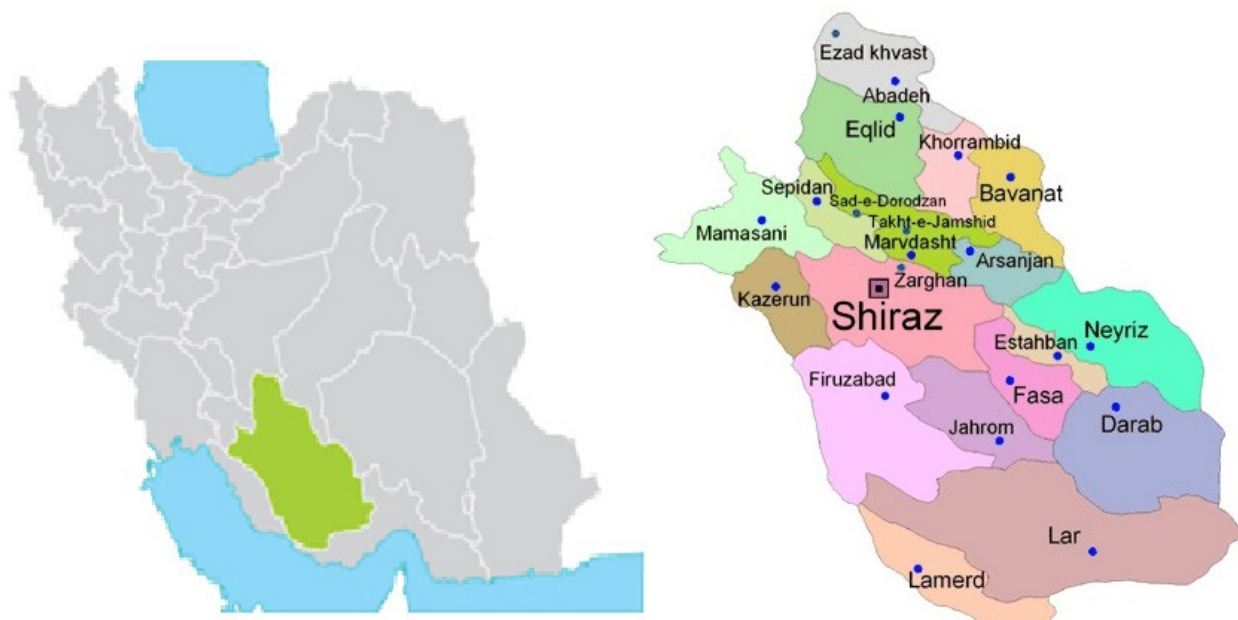
2. Study methodology:

In the present descriptive research an analysis is outlined which is going to finally lead to the presentation of a plan for a domicile-garden after it undergoes a series of library research regarding the structure and the constituent elements of the Iranian garden and the principles upon which the domiciles and the dwelling places are built after which a site will be taken into consideration in the city of Shiraz as one of the frequently-visited cities in Iran with abundant and beautiful gardens and finally the proposed plan will be analyzed for the construction of a domicile-garden.

3. Case study:

Shiraz, the capital city of Fars, the city of the green gardens and one of the five biggest cities of the country includes an area of about 10300 square kilometer. The city is located in 29° and 32' of the northern latitude and 52° and 35' of the eastern longitude and it is 1540 meters above the sea level. The city enjoys a semiarid climate.

Figure 3: the location of Shiraz in Iran



Shiraz is a fantastic name and it is also narrated in the legends that Shiraz, the son of Tahmuras, one of the Pishdadiyan dynasty kings, founded the city of Shiraz and granted it with his own name. In other words, the name of the city has been “Shahr-e-Raz” meaning the “city of secrets” which was later shortened to “Shahraz” and finally it was called “Shiraz” (Le Strange & Mahmud Erfan, 1988).

There are two dried river beds (watercourse) in the northern and southern sections of Shiraz. These two rivers collect the floods from the mountains in the periphery of the city (and unfortunately the sewage from some of the industrial and hospital centers) and take it to Maharloo Lake in the western part of the city; additionally, all of the floods and watercourses from the city and its surrounding are led to the lake. In the periphery of the city, there are numerous springs and ponds: the ponds of Dalak, Shur, Pol-e-Berenji and Chushk.

In the north and north western part of the city (Ghasr Al-Dasht) there are many gardens which have been established since long ago and it is now for several generations that the people of Shiraz make use of them. In fact, the old Shiraz has been famous for its beautiful and refined gardens and one can dare to say that no other city in Iran enjoys this great number of the traditional and beautiful gardens. Garden of Eram in the northwestern section of the city is one of the most popular ones. The garden of Eram is famous and known to the people from all around the world because of its beautiful young cedar trees. The garden of Delgosha in the eastern section of the city and in the vicinity of Sa’adi Tomb, the garden of Afif Abad also known as the garden of Golshan in the western part of the city, the garden of Narenjestan or Ghavam Narenjestan garden in the Gowd Araban neighborhood, the garden of Khalili in the northwest of the city, the garden of Takht in the north, the garden of Nazar in the central part of the city where the pergola building (Pars museum) is located, the garden of Safa and the garden of Jannat are among the other famous gardens of the city.

Accordingly, it can be readily understood that the city possesses a great potential for accommodating a garden – domicile. In doing so, a site in the northern part of Shiraz (figure 4) was taken into consideration for which multi-storey designing principles were formulated.

Figure 4: Site position in Shiraz



4. Discussions and conclusion:

After the Iranian gardens' structure was surveyed and the principles of usual use in the dwelling shelters and domicile designing were formulated, the main plan of the site was designed. In the Iranian domicile-gardens which are also taken into practical use as a pattern in the present plan, there are principles observed which encase the identity of the garden in to the original concepts mould.

In the caravansary-gardens, the concept of building roomy accommodations has been the focus of the attention by the designers and the architects and the terraces in the front part of the rooms besides their role as barring the sunlight from entering to the room acted as platforms which provided for a clearer view of the nature. In such types of the gardens high grounds with specified heights were used in certain identical distances corresponding to the topographical dip of the land along which the vegetative cover was planted and arranged and also they served for shaping the water path and the water motion axis. In such types of the domiciles which are formed according to the natural slope of the land, the water sound and the way the trees are planted finds twice as much importance.

In such designs, the principles outlined to be applied in the dwelling shelters are proposed according to copying the model of the Iranian bench gardens (garden of Takht). That is because the garden of Takht besides being enjoyed of the nature and in doing so magnifying the edifice which is most frequently positioned in the farthest end of the garden, is usually built based on a type of architecture which is per se laid upon the natural topography and the natural shape of the land and this, in itself, gives twice as much beauty to the Iranian garden and it is an affirmative sign indicative of the fact that the Iranian garden has always been part of the nature and that it has not been so much interfering in changing the nature the way it has been.

Due to its prioritization for a proper landscape and the wide terraces which are considered as the pillars of the Iranian domicile architecture, the number of the guest rooms designed in such garden domiciles is 12 and it should be mentioned that according to the country's hotels and guest rooms ranking list criteria such domiciles are regarded as the second class for reasons such as the number of the rooms and so forth. But, in terms of the designed facilities and the provisions offered in the domiciles which are frequently used for public uses and recreation they are ranked as first class.

But the most important thing in such domiciles is the view of the garden which can be seen from the terraces usually built wide and they are originally in line with the main axis of the building and designed oriented towards the natural outlook of the garden in order to contribute to the referents' mental comfort. Such terraces can be seen with no exception in all of the Iranian garden villas and they are usually accompanied

with a concept of the vast view and enjoyment of the nature. But, regarding the reconstruction of such terraces in the today's architecture it has to be made sure that the regional climate is firmly adhered to. Otherwise, the Iranian architecture principles in which the climatic issues have been given too high a value atop of the other matters are violated.

In designing the multi-storey domicile-garden in the city of Shiraz there is taken advantage of the ancient architectural patterns and a modern and novel space has been created through applying such patterns and principles, for instance:

- Taking advantage of the old residential architecture constituent elements such as platforms, terrace, porch as the semi-open spaces connecting the interiors of the building to the exteriors;
- The use of various types of corridors such as dark and bright corridors;
- Designing overarching spaces for the purpose of reducing the view;
- Designing internal high skylights for the purpose of providing for higher level of legibility of the spaces;
- Providing for a unidirectional view in the living spaces for the purpose of striking a balance in the spaces;
- Selection of appropriate sites dominating the landscape and the climate according to the vernacular patterns;
- Considering a sort of step-like designing pattern in order to augment the landscapist perspectives and reducing the disturbing views and blending it with the green roof to provide for a greater rate of enjoyment and sustainable architecture.

In designing this two-storey domicile-garden, the plan was formed based on the site slope and the main contours as corresponding to the rock architecture of the soft fractures and then it was dealt with locating the spaces and then the plan gradually obtained its main form. Finally, the platforms were designed and they were combined with the building plan (Figure 5).

Figure 5: the final plan of the domicile garden in Shiraz



To cut a long story short, it seems that taking the entire principles contributing to the human comfort and wellbeing into consideration is of a great importance in respect to the traditional architecture. The old architects consciously or unconsciously have created types of buildings which can be said that all have been built based on climatic considerations to provide the residents with physical and mental comfort and tranquility. This is the issue which appears to be missing from the today's architecture which has been blindly following the lead of the western architecture.

Shiraz is considered as an appropriate grounding for the development in designing such domiciles due to its being replete with the gardens remaining from the past. Due to the presence of the great many of the archeological, cultural and historical remnants and with the great number of the Iranian and foreign tourists visiting the city, Shiraz can be enumerated among the places which can best represent and introduce the Iranian culture and architecture. Therefore, in the present study it was tried to provide for a domicile for the purpose of accommodating the guests from various locations through taking the Iranian garden form and moreover it was also attempted to showcase such gardens as the indicators of the Iranian culture besides their being served as the resorts and recreational spots providing the visitors with comfort and joy.

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