Pathology of The Historic Tourism Attractions In The Islamic Era Urban Planning

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ABSTRACT

In the study of touristic monuments pathology, basic data collection that offer comprehensive definition of the environmental condition in the region, will help to classify injuries, better understanding the injurious factors, and ultimately offer the protection solutions for improving these materials and preventing the destruction of historical and touristic attractions. Research methodology in this study is descriptive-analytical method and data was collected using a questionnaire. With the applicability of these data with field observations that focus more on the severity and forms of injuries, Can be identified that different kinds of damages, structural properties of materials beside the geographical and environmental factors how and how much Have contributed. And using these results in order to rehabilitation and sustainable development of historical attractions of Iranian - Islamic cities can be take step.

INTRODUCTION

The production and preservation of valuable historical and cultural places are not anew issue in Iranian traditional culture but the construction of tombs and religious places are respected and people help to maintain them. Among peoples of different religions in Iran, tombs and holy have been placed in a best situation. In Iran most changes of structures like mosques, school and other depend on social, economic and other statues however, tombs are buildings that are built without noticing to these statues and are made by the best and top method of that time. Islamic architects groom tombs by the various methods. In each period, one of the decorative elements of tombs decoration is common; for example, in the Saljughian era brickwork, the Ilkhanian era tore and Safavian era tiling was common. In some cases decoration like brickwork, tore and tiling are used together.

Tombs often are drawn in circular, square and octagonal plans in various architecture methods (such as tomb Moulla hassan Qashie in Soltanieh and Soltanieh great dome in Zanjan).

Like other Islamic tombs are decorated by brickwork, tore and tiling. In designs of pathology in cultural structure, activities and individual plans should be performed in a schedule.

Identifying harmful factors to the building, studies and using results mainly will be possible by scientific researches, testing and evaluation expertise.

First must research to understand harmful causes in material to be sure of accuracy of decision and the results of operation in Moulla hassan Qashie.

1. Tombs:

Is an Arabic word meaning the part of top land, but the building in Persian is called a monument which is built on tombs of a religious, scientist or social characters. It was common in the era of Sadat Alavi. Saljoghian era was the greatest period of building mosques with high alter such as Saveh Mosque. Ilkhanian after coming to power created religious’ sites and master pieces. (Oljayto in Ghzan Khan Era).

In Teymour Era, they rebuilt buildings and one of the most important performs was building holy shrine Imam Reza. In dedication was common in Safaviyeh period.
Which were reason for building mosques and holy places? Most services performed by Shah Tahmasb and Shah Abbas Safavi. The prime core of buildings in Iran consists of a cubic round, polygon, semicircular coverage dome, cone and similar forms is called shrine, and the shrine is located in the middle of room and some times. In underground floor (basement)

2. The tomb of Moula Hassan Khan Qashie:
Molana Sheikh Hassan Qashie was permanent face of shia literature (poetry) in 1298 AD. His title was (Qashie title) and the origin and native land was Mazandaran, Amol City. His ancestors were from Kashan. (Figure 1)

Fig. 1:

2.1. Location:
His tomb is located at distance of 3 kilometers south-east of historic Soltaniyeh Dome. That is made for Moulla hassan Qashie, one of the scholar divine wisdom, in Shah Tahmasb Era. This is made as the pattern of Safaviye Era. (Figure 2)

Fig. 2:

2.2. Building Construction
Building with octagonal plan in interior View can change to large view. This building from exterior view has octagonal plan and internal perspective with a combination lateral porches turned to square.

Octet sides are mirror in front of each other and they are 8.5 and 7.70 meters. Quad porch, the ground floor are related to each other by a beautiful atrium.

Small porches are divided into two floors and they are related with a stair to large porches. Great porch bit is 4.5 meters and small 3.5 meters. Approximately 0.5 meter is higher than the plain. The inner side of the tomb is square and about 6 meters that four sides are connected to porches by four large bits. On both sides are two rectangular niches. It is likely for lighting candles. In the same side of qiblah instead of alter which is completely lost at times, the port is located. During the reign Of Fath Ali Shah and his son (Mirza Abdollah) in Zanjan, this monument was repaired and some Nastalique written poem tore on in the inscription. (Figure 3)

Fig. 3:
This inscription includes a decorative bar and same interest borders that is seen the round, inside an injection of dome. Apparently, the poem is unfinished and unread a few bits on the track yet. Extraordinary, making inside the dome used delicate. Interesting tore including tore Mogharnas and red beautiful Shamseh covered interior surface of dome. (Figure 4)

Fig. 4:

Over the entrance of building, large window could be seen that provide the light. Outcome of this relationship is a beautiful dome that sits on the central quad core and covered by three gaps. (Figure 5)

Fig. 5:

Interior dome that is tore decorated have been connected to dome by wooden beams. Recent dome is about 20 cm width. The third or outer dome is dome that has a beautiful from and covered two below dome. Totally is comparable with Mashhad Khaje Rabie dome. It has something input of collection including guard and janitor rooms, the walls of the rooms from exterior have been changed to ceiling shots. In the middle written Allah, Mohammad, Ali in Kufic that the word by composition of turquoise bricks and tiles emerged. {La Ilaha Illa Allah} is repeated in the border of beautifully designed arches. (Figure 6)

Fig. 6:

2.3. Art Dimension and Buildings Decoration:
The prominent feature of this building is combination of brick and tile which they are turquoise on the base and exterior part of it. Dome stem is divided into four parts. The first part is repeated inverted palm, the second part names and sentences like (Allahoma Salle Ala Mohamad Va Ale Mohammad) and also Allah, Mohammad, and ALI in KUFIC has been executed.

And the third part of the decoration of zigzag and finally parallel lines decoration is covered by combination of brick and turquoise tiles. In the bottom layer of tiles is a poem that shows data of building completion. The interior decoration consists of tore Mogharnas Kari, in Fath Ali Shah Ghajar period have cost by Abdollah Mirza the governor of Zanjan, was made and under the Mogharnas Kari is an inscription with Nastaligh. In dome stem, the name of some architectures and repairers of Ghajar period is written. (Figure 7)
2.4. Antiquity of building:

According to studies, the tomb of Moulla Hassan Qashie in the era of Shah Tahmasb Safavi is made like Soltaniyeh dome according to inscription on 1553 AD, the building ended toward the end of reign of the Shah Tahmasb Safavi. So this is one of the great pieces of Safaviyeh. Inside the tomb excavation, landscaping with regular stone walls have been found. Inside of that the along grave with dimensions 3.80 *3.90 meters was discovered that three part of north, east and west with green stone caving were built.

Meanwhile, some green gems have been achieved the inner courtyard of the tomb which has been written. It is top. (Figure 8)

Fig. 8:

But it should not be forgotten the old decoration coverage is achieved in the first layer. It appears that the tomb has been repaired at least three times. The most important has occurred with tore decorated at the time of Fath Ali Shah Ghajar.

Generally, the building has strong frame and solid foundation. That more than ammeter deep is into the soil, clay and lime. In past, the porch walls have frame that has decorative tile and currently is empty of decoration. A hundred feet away from the tomb remains a very interesting building with beautiful decoration. According to locals, the collection of Moulla hassan Qashie home was a school. But this is certain that the above mentioned dilapidated building is in entrance, and in general seems home and tomb are parts of large garden and edifice. The entrance decoration consists of small yellow, cyan and black brick in the building. (Figure 9)

Fig. 9:
In both pillar sides of the low to high is an inscription in Kufic inscription. Inscription that repeated (ALI) by turquoise tiles. On each side of entrance some arch are mounted. The building has two inscriptions in BANAYI hand writing.

A) In the surface of arch decorative façade with words of (Allah), (Mohammad), and (Ali) with turquoise tile on brick text.

B) Inscription in the black brick with the (La Elaha Illa Allah) has been seen around the arch.

Excavation that occurred in the of Moulla Hassan tomb, a cobble stone street appeared That is covered by broken stone Length is 95150 and width 5 meters that before have been laid with rubble stone. This street linked entrance of large court to Moulla Hassan tomb. This historic building has been registered under the number 168. (Figure 10)

2.5. The Current Situation:

Natural erosion and time damaged the building. The cultural heritage department acted to conserve and restore and continues. I hope that this paper may contribute to building refurbished. (Figure 11)

2.6. dome decoration method:

Tile work is one of the most important arts in Islamic architecture. It is used in interior and exterior view, mosque and bridge. The glazed blue, green, black bricks were for decoration. (Figure 12)
Fig. 12:

It is classified to various methods. In Ilkhanian era developed they are made in Kashan and export. Tile work developed till Teymuri and Safavi era in all around the world. (Figure 13)

Fig. 13:

Generally decoration of the dome is divided into three periods, including the period of Teymour safari and Ghajar. Bat according the inscriptions and studies conducted Moulla Hassan Qashie tombs were built in the late safari of shah Tahmasb safari. This building is an of the safari tombs that was covered from turquoise tiles throughout healthy days.

Unfortunately, by passing the time and with hard slap in the cold and heat, it wrinkled and artist repaired parts of it. Our surface of dome from stem is decorated by blue, black and green glazed bricks and the basis follows:

1. sixteen rows of simple bricks from roof to the top of dome, without any decoration, shows stability, simply city and purity. The window in southern side for providing light has a special beauty
2. nine rows of star shape with glazed bricks as upside down and standing from up to down like a square frame have been boasted in stem dome
3. a single row of simple brick with black and turquoise two in one, around the dome like a strip is surrounded and it’s for a field for god names
4. distance of checker board of cod name is decorated by and Mohammad Ali and blessing in Kufi hand writing around the dome
5. a row of rectangular shape at the top of decorations
6. 6: a row of beautiful star implemented under the pone of half cylindrical and pones
7. A row of four side star with zig zag brick.
8. Arrow of glazed bricks in parallel and perpendicular to the vertical axis the separate top of dome from stem and shows the majesty of this building.
9. Top of the dome is decorated by god name and observed each visitor (Figure 14).
Fig. 14:

Usually in decoration of stem dome or place where there are windows, artist runs inscriptions that windows are reveal and inscriptions formed beautiful.

But here is not accuracy or restoration carries out during the course of the neat, maybe the reason of that. Most of the dome tile has been destroyed because of disasters and other factors. Based on information received last refurbished in the 2008 AM haven occurred and now is in future programs of cultural heritage organization. (Figure 15)

Fig. 15:

But the reason of greenish blue corer is compound copper for making light blue glaze in most places. It can be analyzed from ore in ore that copper and iron are mined; the greenish blue glazed is obtained.

3. **Damages analysis of tiles for Moulla hassan Qashie dome:**

   Destructive factors of this building are divided in two groups:
   
   1. Structural damages( glaze, break)
   2. External damages that are affected by environment

3.1. **Structural damages of glaze and break:**

   Glaze is a thin glass layer that covers muddy surfaces and it is achieved by melting mineral materials on the body surface or by firing the body in presence of alkali steams. The glass material is as a result of non-crystallized cooling of melted materials that change to a strong and durable material. (Figure 16)

Fig. 16:

3.1.1. **Cracks and Chips:**

   When the rate of thermal expansion coefficient is higher than body’s because of glaze’s higher intention to shrink while cooling, tensile stress is enforced on it by the surface that creates a net of cracks on the glaze surface. (Figure 17)
To reinforce glaze toward the cracks without hurting or changing other characteristics, it is essential to add following materials about 3 to 10 % Calcium Carbonate, Magnesium Carbonate, Dolumit, Zinc Oxid, quartz or Caolen, the mentioned materials’ quantity depends on the number of achieved cracks and the glaze’s density.

3.1.2. glaze dulling:

The reason of this failure can be due to extra-thinness of glaze in glazing. Absence of dullness is due to raising the un-flatted materials of glaze while firing and if the materials are flatted they will not rise and glaze will not be dull. (Figure 18)

While firing, most of the fluid materials are raised and cause dullness indeed it causes the materials of the glaze melt incompletely. By adding Decestrin and few Bentonit, as support materials, one can eliminate this failure completely.

3.1.3. shrinkage and chipping:

Emerging those failures can be for many reasons when there is a typical pressure tension and there is elasticity tension on the body the tile’s body endures the tensions. If there is a higher difference for extension coefficient, extension coefficient differences increases and the pressure tension overlaps the body and integrates the tile piece. As a general process to eliminate the failures one should abrade the glaze then changes some greasy clay and glazy Caolen with non-plastic material such as fired Caolen. (Figure 19)

3.1.4. glaze separation:

It can be emerged like a tiny un-glazy body or island-liked balls on the body. Effective variables can be surface extension and the glaze contraction. Tiny spots appear on the white glaze that they don’t have enough dullness and support, the reason for this failure is separation in the glaze’s grout that can be eliminated by adding some Electrolyte to the glaze. (Figure 20)
3.1.5. **glaze overlay:**

Typically, easily melted and soft glazes causes such failures, they must be restricted immediately or some Aluminum oxide and quartz be added or increase Cao. While exceeding alkali materials in glaze can cause such a problem that can be decreased for few amounts. While appearing the problem in higher temperature (more than 1100 C) can be mostly due to higher amount of Zinc oxide. One can eliminate this failure by decreasing the Zinc oxide or decreasing amount of the Quartz in glaze. (Figure 21)

3.1.6. **break’s structural failures:**

Cracking is one of its initial weakness that can be due to direct exposing the break in sun and strong winds’ blowing that causes fast drying. Lack of essential pressure while casting prevents cracks and creates separated layers that are potential for the break freezing.

We can say that inappropriate aggregation and lack of unity before firing and inappropriate casting are variables that create cracks on the break. (Figure 22)

Another common failure of conventional breaks is core blacking. The reason for that is straw and remains of plant fuels of raw breaks and the appeared smoke can’t escape from the body, direct and extra heating of the body causes early firing of the surface and closing its holes, consequently smokes and vapors are trapped into the body. (Figure 23)
3.1.7. **clinker break:**

Another failure of firing process is clinker break. Increasing the firing temperature and lengthening fire time in highest temperature melts synthetic elements of the break and creates glass texture, as it is obvious on the doom’s stalk and using such breaks not only it hurts aesthetics but also causes the break erosion and falling the break aggregates (figure 24)

![Figure 24](image1.jpg)

3.1.8. **Alouak:**

clays that are used to produce the tile’s break change into alive lime, if they have large grains, and after placing on the building and moisture adjacent explodes the break by increasing the volume then destructs the building (figure 25)

![Figure 25](image2.jpg)

3.1.9. **Attrition due to moisture and undermining by water:**

Shower raining and snow can suddenly decreases the tile’s surface temperature and causes fast freezing and cracking. Water penetration into the prior cracks establishes some holes that gradually and by more erosion changes into a great gutter. Moisture transmission from the bottom of the wall and the stalk due to various elements like raining, inappropriate drainage under the stalk and higher amount of environment moisture gather water in the base surface cover’s saturation and decreasing the tile’s aggregates adhesion then separating and exiting the materials gradually causes some holes. This process continues toward upper and down parts and eventually causes destruction. Presence of solution salts accelerates this failure. Rainwater in the cracks and the building’s tiny hoes slump the building and creates deeper cracks and eventually creates brown spots on the building surface. (Figure 26)

![Figure 26](image3.jpg)
3.1.10. Cracks due to slow decreasing the resistance and aggregates’ adhesive:

Attrition and decrepitude beside the environmental elements have direct and negative effects on buildings, the rate of atmospheric elements’ effects including: temperature changes and moisture, depends on the aggregates’ type. Presence of these two elements decrease the building resistance in front of the delivered forces and creates some cracks on it. Old buildings, in particular the building’s covers, that are directly exposed to atmospheric elements, should be under supervision regularity. Aggregation destruction due to inappropriate blending and moisture penetration are seen on the great part of the building. (Figure 27)

Fig. 26:

3.1.11. Attrition due to saltpetre:

Solution salts (Sulfate, carbonate, Nitrate, color) that penetrate into the tile by water, they are crystallized around there, as a result of dehydration. When crystallization occurs on the surface, the reason is lower amount of airing and evaporation level of the surface. If evaporation occurs in shorter time on the surface, water evaporation is faster than its substitution in test tubes. As a result solution salts settle under the surface layers that is called hidden flourish (figure 28)

Fig. 27:

Fig. 28:
Few changes of moisture cause crystal development and pressuring on the delivered stress in the holes wall. Adjacent walls resist toward the delivered stress due to crystal development and overcoming the stress, some cracks or holes appear in the surface. Temperature and moisture of the environment, surface porosity, penetration, wet and dry cycles, aggregation positioning in the building and the salts solubility can affect apparent forms of the saltpeter. The more wetting and drying cycles occur, the more destruction and damages of soluble salts will be.

3.1.12. destruction due to freezing:
This model is based on the theory that tiny iced crystals develop in a rather great holes or cracks but they can’t develop in thinner holes while the pressure of crystal development is in sufficient, as a result water saturation is due to the developed crystals that they melt because of the pressure on the pores walls if there are moisture resources most of the greater spaces are filled and ice crystals can develop in the pores. It is notable that freezing inflated pressure is not related to increasing the frozen water’s pressure. Such freezing damage occurs in settle structures with tiny porosity. (Refer to soil damages) it is experienced that pores with 0.1-1 micron diameter can create greatest stresses. Delivered stresses are neutralized because of crystals’ development by adjacent materials stress resistance. In nearest level, a thin layer of materials, that is the most exposed to the delivered stress.

Dangerous, creates a fragile situation that cause the layer separates or steaks. Increasing the extension stress are halted by under layers as a result delivered forces by under layers are stopped that increases stress of the surface and cracking or chipping. (Figure 29)

3.1.13. Attrition due to metals corrosion:
Corrosion process is a chemical reaction that misses metal characteristics by changing to mineral compounds. Very typical reactors are Oxygen and water that usually are intensified because of active element’s presence. Ferric elements that are used as joints, reinforcements etc. calcium in construction materials they start to react and corrosion while water reaches them. Increasing the metal volume (about 2.5 times) causes internal stresses and creating tiny cracks in materials around the tile. The achieved cracks are facilitators to weather penetration to the metal’s surface and destruction process increases suddenly and can creates a catastrophe in a short time. (Figure 30)

3.1.14. Attrition due to atmospheric polluters (polluter gases):
Polluted atmosphere of cities and around them contain various amounts of Dyoxid Sulfur due to sulfuric fuels. Dyoxid Sulfur oxidation results in Acid Sulfuric, which is a strong one, and wears various tiles (carbonate, Silicate etc) (figure 31)
3.1.15. Wind effect:
Those surfaces that are exposed to the wind, depending on the time and intensity of the wind can be blurred or wore destructive, strong winds and those winds with sand and gravel cause attrition and surface damages and opposing mechanical forces. Wind power accelerates rain drops on the surface and besides breaking them, separates them from the surface, by mechanical forces. (Figure 32)

3.1.16. Attrition due to earthquake effects:
Earthquake is one of the destruction and crack maker elements in any building that appears immediately and suddenly creating sinus vibrations that move walls and causes in-plump of the façade. Action and reaction effects of earthquake vibrates walls immediately this is one of the most important external variables in ancient building attrition that it continues like creating a great cut from the dome’s apex toward the stalk. Lack of adhesion between aggregations creates such a big crack. (Figure 33)
3.1.17. Attrition due to animals:

Animals are from destructive variables of buildings that hurt this dome’s tiles by nesting and pecking but the most damage is because of their droppings. Bacterizes produce some acids by breaking down the droppings and remains of nesting’s that causes attrition. Theses acids are very deleterious for monumental buildings and it has irreparable damages. (Figure 34)

3.1.18. writing mementos:

Visitor-made writing, design, punctuation on the decorations of ancient and historical buildings that is because of behavioral excitements. writing daily notes or mementoes that is typically including writing full name and date on the walls, doors in particular tiles around the dome, wall paintings, prominent break signs and etc… that is drawn by pane pencils, coal, gypsum, colorful stones, ink and color, and typically removing them is a hard task and typically hurts historical and cultural works. (Figure 3-35)
3.1.19. Incorrect renovation:
Lack of enough information and incorrect renovation by non-expert people lack of pointing and using undesired materials to prevent rainwater penetration and sulfate attacks from cracks and joints that causes mechanical pressure and saltpeter in the building that threatens the building’s stability. (Figure 36)

3.1.20. Attrition due to chipping:
Removing a part of the edge causes moisture penetration, saltpeter, microorganism development. The chipping can be in the edge or direction of angels, separating the layers due to crystal salt development in the edges and moisture penetration and irregular movement of crystal salt into decorations. Destruction process will have significant effects in presence of solution salts and winds effects.

Conclusion:
Conversation about protective activities and renovations to establish about one of the constructive materials needs to be analyzed regarding specific aspects. Respecting the building’s entity should be regarded as an important basis according to international charts, goal and conclusion. Damages due to environmental variables are those that cause cultural works’ destruction. Surfaces that are exposed in external position with open environment and under the surface parts cause chipping as a result of freezing cycles and melting and hidden flourish in winter that is regarded as airing elements. Indeed other elements like incorrect renovation, writing mementoes, air pollution etc. are some reasons to destroy this ancient building. Though a national attempt is
needed to preserve and maintain historical buildings and to achieve this goal, increasing public awareness, sensitizing the country’s decisions toward cultural heritage in the government decisions should be regarded.

REFERENCES