CONSERVATION & RESTORATION OF HERITAGE STRUCTURES: CASE OF TOMBS OF NAKODAR

“Without Architecture, we cannot remember...” - John Ruskin

Ar. Rajni Kumar
Assistant Professor, Department of Design,
Apeejay College of Fine Arts, Jalandhar City.

ABSTRACT

Heritage structures perform vital role in nation’s history, culture and signify the richness of it. To augment life and enhance strength, their conservation is very important for the future generations to have knowledge about how mankind lived in past ages. (Preserving and restoring monuments and historic buildings, 1972) Today, demographic and economic changes threaten, as never before, the survival of our cultural heritage. Hence, arises a need for conservation to keep the monuments in good condition and restoring the structure to its normal static and functional condition. (HakkiO.Ozhan, 2014) This paper is an attempt to identify the common defects and problems faced in old structures by taking a case example of the tombs of Nakodar and identifying the methods adopted in the past to undertake conservation while respecting structure’s cultural integrity. It has been found that there are number of intrinsic as well as extrinsic causes responsible for decay of the building. Thus this paper is an attempt to facilitate the work of a conservation-architect by providing necessary information required for the conservation and restoration of a historic monument and to devise a systematic approach towards handling these issues.

Keywords: Nakodar Tombs, Heritage Conservation, Documentation, Causes, Techniques.


1. INTRODUCTION

Heritage has an important role in shaping the destiny of the community. Every building has its own life cycle and grows old with the ageing of its component materials. Most old cities have some monuments which represent the religious, military, political or economic powers of the past. The condition of such monuments is determined largely by their present function...
and use. Monuments which have no further utilization tend to decay rapidly, while monuments which are still in use have a better chance of being maintained. Restoration increases the total expected life of the structure by strengthening it to withstand all imposed loads. If the structure is not timely restored, its condition may worsen to an extent such that it becomes very difficult to regain its original condition. Nakodar is one such city in Punjab with rich treasure of cultural heritage in the form of architecture and urban spaces, that needs to be conserved so that it becomes the reason for social integrity and economic prosperity for generations to come.

**AIM** : Safeguard the architectural heritage by promoting systematic conservation and restoration.

### 2. OBJECTIVES
- To investigate the causes of deterioration of a heritage structure.
- Assess existing condition of the structure and identify the conservation strategies.
- Additional design strategies for the future.

### 3. METHODOLOGY
- Literature review
- Brief History and Documentation of tombs of Nakodar
- Data collection: Causes of decay
  - Conservation Practices adopted in the past
- Analysis: Conservation Practices needed in the future
  - Identifying the need of conservation

### 4. SYSTEMATIC APPROACH TOWARDS CONSERVATION
A general restoration approach may be adopted as a basis for taking up work of restoration that provides a logical sequence of various activities to be followed in restoration works. Identification of various problems, dividing the most suitable method to tackle the same, careful decision taking care of building's historical significance, physical condition is the restorer's task. The technique adopted should be effective and economical.
5. LITERATURE REVIEW
The author R. Subramaniam explicates that to extend the service life of a structure repair and rehabilitation play a vital role which is the process of achieving the original state of structure when it undergoes any sort of deterioration. (Subramaniam, 2016) Number of heritage buildings are surveyed by the author to know about the causes of destruction of which cracks, roof leakage, peeling of walls and ceilings, presence of mold stains are the common problems faced by the heritage structures. Author Sayali Sandbhor and Rohan Botr insist on adopting a systematic approach towards restoration of heritage buildings. The best therapy to reduce decay according to them is preventive maintenance that can limit or postpone the need for subsequent intervention. The actual problems have been analyzed by reviewing a paper by M. Y. Awan and N. S. Kazmi who have discussed the present condition and causes of decay of Tomb of Jahangir which is 370 years old and one of the most significant buildings of the Mughal period at Shahdara, Lahore. The natural and man made causes of deterioration of the structure are studied to find suitable solutions for their conservation. The examination and analysis reveal that the building is in acute need of structural stability, instead of its face lifting. The efforts should be shifted from restoration work to regular maintenance of building. It is also important to protect our heritage structures from natural calamities like earthquakes for which the author Sanghamitra Basu advises that measures for before, after and during the earthquake should be pre decided. Understanding the nature and causes of damage, Improvement of the seismic resistance of heritage buildings, Learning from traditional construction in Seismic Areas and Formulation of steps to organise disaster preparedness can certainly be a strong measure when the disaster strikes. (Basu, 2012) A report on site conservation assessment to study Jahangir's Tomb Complex prepared by Rogers Kolachi Khan & Associates reveal that not only strategies for conservation are required for the upliftment of the structure but also Community Involvement, development of Tourism, provision of visitor facilities, site cleanliness, preparedness for disaster, knowing
about threats to the site, routine monitoring and issues like staffing, funding, encroachment etc also need to be considered. (Khan, 2011)

6. STUDY AREA
Nakodar, a major urban settlement of District Jalandhar derived its name from the Persian words Neki ka dar, which mean Gate of Goodness or Virtue. During the Mughal period, the road from Agra to Lahore passed through the town. Jalandhar lies 25km away while Ludhiana, Punjab’s industrial hub, is 50 km down another road. The town is famous for Dera Baba Muraad Shah ji, visited by thousands of visitors on daily basis. It is also famous for its farm produce, movie projectors, pharmaceutical machinery and rugs. (Jurisdiction, 2015)

6.1. Historical Background
Nakodar, a historical town was anciently founded by the Hindu Kamboh. The lordship of the town passed over to the Khanzadaas from the Kamboj tribe in 1570 AD with the coming of Nawab Kutb Khan, who came with an army from Indor near Nuh. Within two generations, the Rajputs got the town in jagir from Emperor Jahangir, in later sixteenth century, apparently divesting the Khanzadahs. During sikh period, Sardar Tara Singh captured it and built a fort. Maharaja Ranjit Singh seized it in the year 1816. It also functioned as a cantonment upto 1854 during British period. Nakodar town has 20 mosques, 16 temples and 8 gurudwaras.

6.2. Tombs of Nakodar
The town is famous for its 2 historic tombs, Tomb of Mohammed Momin and Tomb of Haji Jamal situated close together which are among the 30 listed monuments and archaeological sites in Punjab. These are maintained as protected monuments by the ASI. The two magnificent tombs, popularly known as that of the Ustad and that of his Shagird lie in a quiet part of the town, surrounded by other old buildings currently in use for various civic purposes. One of these old buildings is a baradari or meeting hall, now magistrate’s office; another serves as a PWD rest house; third haveli behind the tombs houses a school. Till the 1950s, even Ustad’s tomb housed a municipal school but then Archaeological Survey of India took over the monuments and gradually restored them to beauty.
7. THE TOMB OF MOHAMMED MOMIN

As mentioned in the historical inscription on the S facade, the tomb was built by Muhammad Momin during his lifetime in 1612 A.D. in the beginning of the reign of Jahangir. Ustad Muhammed Momin was a tambura player in the service of Khan-I-Khanan, one of the Mavaratnas in the court of Emperor Akbar.

![Image of the tomb](Source: Google)

### DOCUMENTATION

<table>
<thead>
<tr>
<th>Material</th>
<th>Brick and Lime Mortar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>The ground floor is a Baghdadi octagon, consisting of four large and four smaller sides. 9.8m and 6.4m each that enclose a square room of 9m side.</td>
</tr>
<tr>
<td>Architectural Characteristics</td>
<td>The tomb stands on an octagonal platform approached by a flight of steps on two sides, it is square from inside and octagonal on outside. Surmounted by a pinnacle, the hemispherical dome sits over a low cylindrical drum and is relieved by four cupolas. Each of the longer face is pierced by deep recesses while the shorter by half octagonal recesses placed one over the other, all covered by pointed arches. The entrances are on the northern and southern recesses while the other recesses are blocked with pierced tracery screens.</td>
</tr>
<tr>
<td>Decorations</td>
<td>The middle portions of the panels on the exterior and the arch spandrels, parapets and corner structures are decorated with geometric design (star &amp; octagon shape) in glazed tile work. The upper and lower panel, framed in lines of red plastered bricks, contain painted designs showing guldastas. Originally within the burial chamber were two elegant sarcophagi of sienna coloured marble inlaid with white marble inscription, which are now lost. The second sarcophagus might have been that of Muhammad Mumin's wife.</td>
</tr>
<tr>
<td>Protecting body</td>
<td>ASI</td>
</tr>
</tbody>
</table>
8. CONDITION ASSESSMENT OF TOMB OF MOHAMMED MOMIN

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The lime plaster from all the walls is worn out.</td>
<td>The fresco work on the exterior walls is ruptured from many areas due to human factors or climatic weathering.</td>
</tr>
<tr>
<td>The fresco work at the parapet is completely ruptured.</td>
<td>The flooring is being affected due to poor maintenance and low cleanliness.</td>
</tr>
<tr>
<td>The pillars of cupolas being exposed on the terrace is affected badly due to climatic conditions.</td>
<td>Only the remains of lime plaster is left on the cupolas and the bricks used for construction is totally exposed.</td>
</tr>
<tr>
<td></td>
<td>The whole structure is almost in rough situation inspite of the strong and stable structural factor.</td>
</tr>
</tbody>
</table>

9. THE TOMB OF HAJI JAMAL

The two lined inscription engraved on the entrance gate of the tomb refers to its being the tomb of Haji Jamal, a pupil of Ustad Muhammed Husseini, the tambura player, towards the close of Emperor Shah Jahan’s reign and gives a date of AH 1067 (1657 A.D.)

Source: Google
### Material
Brick and Lime Mortar

### Plan
This tomb reverses the plan of its neighbouring tombs as it is square on the outside and octagonal inside, having an archway on each side of which only the one on the S side gives access to the interior.

### Architectural Characteristics
It stands in the middle of the 32.5m square and 2.4m high platform, panelled on all sides with deep recesses concealing two flights of steps on each side. Each of the four faces have octagonal recesses covered by pointed arches. The building measures 16.2m square, having an octagonal turret at each corner. A bulbous dome crowned with pinnacle sits over a high drum and is balanced by the four cupolas crowning the turrets.

### Decorations
The interior of the tomb is covered with very fine plaster. The façade is divided into red stucco covered brick framed panels and painted with white lines. The larger panels are filled with flower pots and the smaller with geometrical designs. The broad belts between the panels are ornamented with diaper designs in tiles of different colours. The octagonal towers and the battlements as well as the pinnacles of the domes are ornamented with glazed tiles.

### Graves
There are six sarcophagi inside the tomb. As there was little space inside after interring six bodies in the tomb, one was buried outside, on the platform. The sarcophagus made of sienna coloured marble bearing an inlaid inscription in white marble is very beautiful.

### Protecting body
ASI

## 10. CONDITION ASSESSMENT OF TOMB OF HAJI JAMAL

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The lime plaster from all the walls</td>
<td>The inner chamber of this tomb is being misused by keeping extra things like ladder, drums that affects the heritage pride.</td>
</tr>
<tr>
<td>wore out</td>
<td>Dome has lost its shine due to environmental factors and poor maintenance.</td>
</tr>
<tr>
<td>Even the remains of fresco are</td>
<td></td>
</tr>
<tr>
<td>hard to figure.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Self
11. CAUSES OF DECAY OF BOTH THE TOMBS

11.1. Causes related to geographical location of building

11.1.1. Thermal Movement:
Nakodar has extreme climate; during summer the temperature rises up to 48°C and in winter falls down to 0°C. The exposed parts of building expand more due to solar radiation, where as internal and shaded parts of building stay relatively cool. Thermal movements create stress in building material and components, which results in cracks in the material and structure. The roof, which is decorated with different colored stones, has also developed cracks between joints at roof; through these cracks, the rainwater percolates and causes damage to the interior of building, having fresco painting and mosaic tile work.

11.1.2. Rain & Moisture
Rain damages the masonry above the ground and penetration of rainwater through capillary action causes decay of structure internally. The rainwater picks up soluble materials along its path and destructive crystallization process occurs when water evaporates. Salt crystallization results in powdering of surface, cracking in material and sometimes even complete disintegration of masonry.

Source: Self
11.2. Causes related to nature of ground
The present water table further rises up during rainy season; resultantly the dampness has become a permanent feature of building. The salts available in the ground have dissolved the lime mortar and have caused serious disintegration of masonry joints. The kankar lime plaster has peeled off from the surrounding rooms of main building.

11.3. Man-made causes
Which include neglect, atmospheric pollution, vibration, wear and tear by visitors and use of poor conservation techniques.

11.4. Biological and Micro-biological causes
Due to extensive dampness the growth of microorganisms is very common on the surface of stone facade. Lichens and fungi have blackened the whole surface, especially the dado panels. The enzymatic activity of micro-organisms has also resulted in loosening, staining cracking and falling of building material.

12. CONSERVATION TECHNIQUES

<table>
<thead>
<tr>
<th>CONSERVATION PRACTICES ADOPTED IN THE PAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1958-59</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1965-66</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1968-69</td>
</tr>
<tr>
<td>1988-89</td>
</tr>
<tr>
<td>2010-11</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2012-13</td>
</tr>
</tbody>
</table>
The interior walls taken up for cleaning and removal of layers of accumulated dirt, dust, soot, stains and greasy matters from their surfaces. A mixture of liquid ammonia and non-ionic detergent solution in water was used for the removal of all these accretionary deposits. The hard and firm accretions were removed using fuller’s earth with additives followed by thorough washing with distilled water.

### CONSERVATION ISSUES AND PRIORITIES AT THE TOMBS (AT PRESENT)

- High quality of painted decoration is in need of cleaning and conservation.
- Rainwater is entering the structure and causing cracks, dampness & discoloration of masonry.
- Major crack in the main arch growing inwards which needs to be stabilized.
- External brickwork which has not been maintained is eroding due to exposure of weathering.
- 5. Structural assessment of all the sections of the tombs needs to be carried out.

### 13. DESIGN STRATEGIES FOR THE FUTURE

- **Main entrance of the tomb complex is not welcoming.** It does not attract visitors to come and visit. The present brick flooring can be replaced by non-slippery stone tiles to blend with the surrounding landscape.

- **These tombs house the holy graves, therefore as a ritual shoes need to be removed before entering.** Therefore, randomly placed shoes of the visitors to the tombs need a proper shoe stand, preferably open type near the entrance.

- **Provision of eating kiosk for refreshment of visitors and also to maintain the tourism economy of the site.**

- **Provision of dustbins for maintaining cleanliness.**

- **An important intervention can be the addition of a Museum, that shall portray the historical background of these two great people through art, paintings and text.**

- **Landscaping elements like fountains, benches, gazebos can be provided.**

### 14. CONCLUSION

Tombs of Nakodar are elegant and visually stunning representation of Mughal rule, design and symbolism in the language of architecture and landscape. It adds to the socio-cultural value of the region as it is symbolic of both historical and legendary versions of the past. The structure may deteriorate due to many reasons as discussed but the best therapy to reduce decay...
is preventive maintenance. Adequate maintenance can limit or postpone the need for subsequent intervention. Conservation of the monument shall only, add to the economic value in terms of potential revenue from tourism, commerce use and amenities. It also provides a social interactive place and establishes community identity. It is not only the responsibility of the government or the related agency to safeguard and maintain the tomb complex or any heritage structure but also needs involvement of the community and thereby strengthen social cohesion. There is tremendous educational and practical potential to be realized in the area of restoration. An architectural, engineering, management as well as social approach is required for such type of endeavour. Proper education and training for such kind of works is today's need. (Institute T. G., 2000) Involvement of more practitioners and technical professionals is required. The potential of this field needs to be realized by integrating and contextualizing the spheres and work of conservation, not only as a self-contained science or technological endeavour but also as a social practice.

REFERENCES


