

2014

# Sundarwala Mahal

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The Outstanding Universal Value of the Humayun's Tomb World Heritage Site is due to this area being an ensemble of 16th century garden tombs of which Sundarwala Mahal is a prominent example. Conservation works on Sundarwala Mahal, which is a nationally protected monument included repair and rebuilding the western façade, restoring decorative plasterwork in the muqarnas and ornamentation, reinstallation of jallies, internal and external flooring, restoration of parapet wall.

## Action Taken:

### Dismantling existing cement concrete flooring to bring it to original level:

- It is understood that the structure originally had only lime-concrete flooring that got disintegrated over the years.
- The task of dismantling existing concrete flooring included removal of cement concrete from the floor using non abrasive methods which helped in revealing the original floor levels.
- The red sandstone of required quantities for the internal chambers have also been procured and this will be provided once the plastering works are complete in the internal chambers.

### Dismantling random rubble masonry alcoves on the western façade:

- Sundarwala Mahal is a square structure with corners chamfered accommodating an opening on all the four sides. Repairs carried out to the western façade about a decade ago inappropriately altered the profile of the half-domed vaulted chambers to simple pointed arches. This resulted in altering the original architectural style of the monument.
- In order to reverse the damage and ensure integrity, the modern repairs on the structure were dismantled.
- During ongoing conservation works the inappropriate reconstruction on the western façade was carefully dismantled followed by reconstructing the original profiles on each of the five bays.

*(Below) The western façade, reconstructed by the ASI in 2001-03 was required to be demolished as half-domes had been rebuilt as arches. The structure has four identical facades.*





*(Left) Dismantling existing cement concrete from flooring; and (Middle) terrace and (Right) laying lime concrete. The final phase of conservation works at Sundarwala Mahal are supported by HUDCO through NCF*

### **Reconstruction and consolidation of alcoves as per original shape**

- The walls were built on the original foundations that also required to be strengthened by grouting of lime mortar.
- A brick shuttering was provided with the help of mud mortar matching with the original, to give proper shape to the openings. On its drying, rubble masonry including preparing wedge shaped stones, were provided using lime mortar (1:1:2) (1 - lime, 1- surkhi, 2 - sand) mixed with organic additives such as jaggery and belgiri.
- The five half-domed bays on the western façade are now reconstructed, raising the wall levels by 300mm.
- The works are now complete.

### **Providing decorative red sandstone lattice screen in the arched opening**

- Three archways on each façade have an arched opening over the doorway, these originally held lattice screens that seem to have been removed from here in the 20th century. These are not only important architectural elements but also serve to prevent the entry of birds.
- After careful inspection and documentation of each arched openings, it was found that the opening sizes were disturbed during earlier repairs and these varied considerably in size.
- New lattice screens prepared individually by the master craftsmen using traditional tools have now been prepared and installed in the arched openings.





### **Plastering the internal surface**

- The wall surfaces were cleaned to remove later repairworks and other deposits. The cement and dead pointing works were raked out and replaced with lime mortar. The consolidation of the existing masonry was done using the lime based grouting.
- The structural repairs include stitching of the cracks, grouting and anchoring took place.
- The internal surfaces were then plastered using traditional mix of lime mortar, sand and surkhi along with organic additives.
- The plastered surfaces are then rammed to cure shrinkage cracks.
- 10% of the plastering works are now complete.

### **Dismantling of existing cement concrete terracing**

- The inappropriate past repairs carried out on the terrace like undulating multiple layers of cement concrete were manually removed and surface prepared for providing traditional lime based terrace.
- The cement layers on the terrace layer have been removed which exposed masonry and original levels on the roof.

### **Laying of lime concrete terracing over the roof** (of average thickness of 125 mm).

- After completely removing the added cement layers from the terrace, the terracing work has been started using the lime concrete comprising lime mortar and brick aggregate. Traditional organic additives such as Bael Fruit pulp, jaggery are added to make the surface water tight and as per original slopes and details.

### **Restoring sandstone flooring**

- After dismantling existing concrete, base layer using lime, surkhi and sand was provided.
- 75mm thick red sandstone of required quantities for the flooring had been procured and the red sandstone flooring was provided in the internal chambers.
- 20% of the flooring works are now complete and the works will be completed December 2014.

### **Next Stage:**

Conservation works on the Sundarwala Mahal are planned to be complete by mid-2015.

*(Below) The interior wall surfaces were required to be re-plastered in lime mortar*

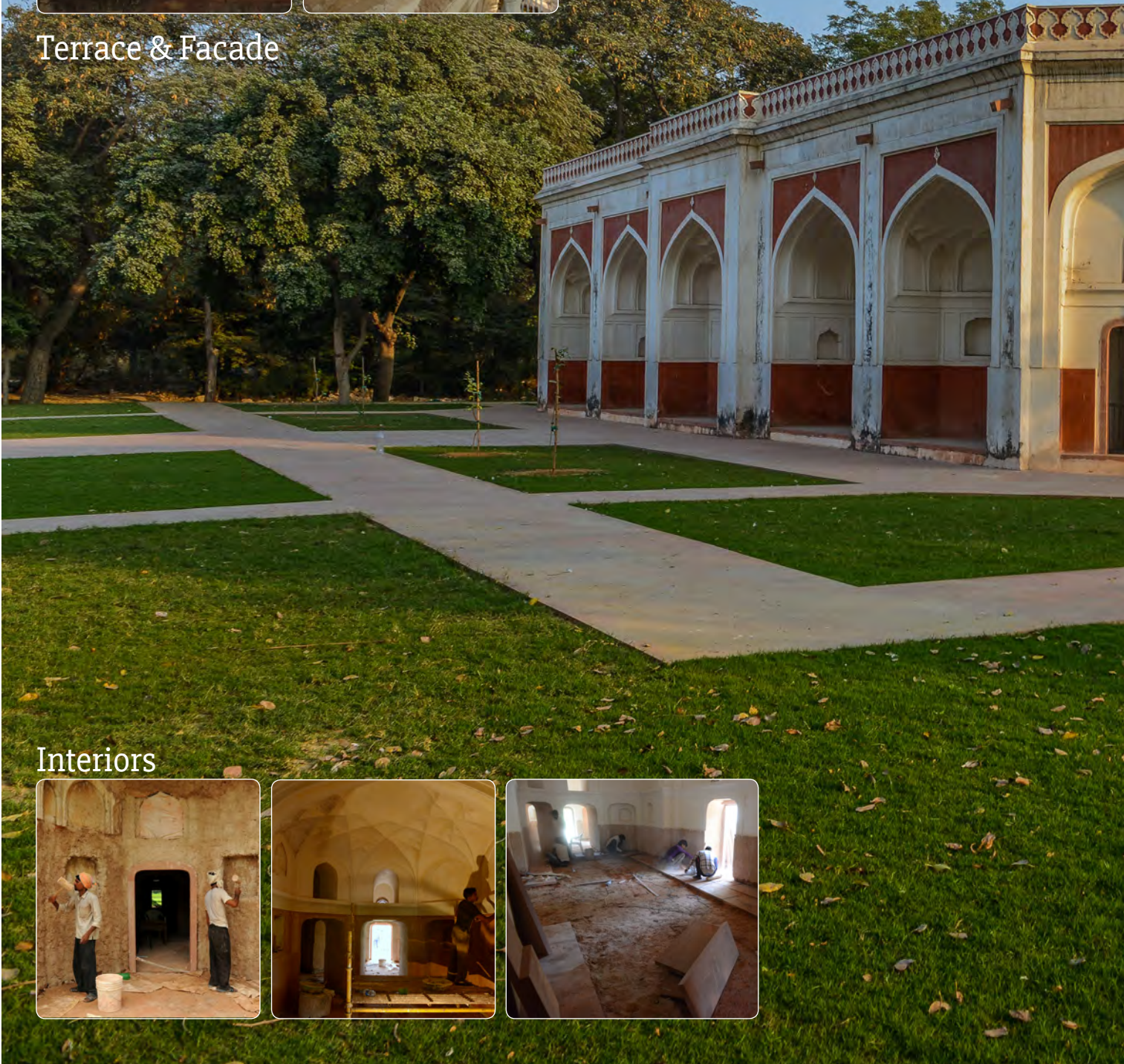


2015





Terrace & Facade



Interiors





# SUNDARWALA MAHAL

Conservation | Landscape Development

Garden







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## Sundarwala Mahal: Conservation & Landscape

The Outstanding Universal Value of the Humayun's Tomb World Heritage Site is also due to this area being an ensemble of 16<sup>th</sup> century garden tombs abutting one another. Similar in plan to the tomb of Mirza Muzaffar Husain, this structure, also a 16<sup>th</sup> century tomb originally stood within a 700 m square garden enclosure together with Sundar Burj and the Lotus Pond.

### **ACTION TAKEN:**

- First phase of conservation works on Sundarwala Mahal were taken up in 2010 when collapsed portions were reconstructed.
- Also in the first phase, portions of building inappropriately reconstructed by the ASI in 2002-06, were demolished and reconstructed as per original Mughal era details.
- In 2014, HUDCO provided funds to carry out the final conservation programme that included installation of red sandstone flooring, re-plastering the structure including restoration of the *muqarnas*.
- The roof required major repairs including removal of existing cement concrete and restoring a traditional lime based flooring.
- Conservation works on the structure were completed in 2015 and landscape works around the tomb have also been completed.

*(Below) Sundarwala Mahal interiors - before and after conservation. Following major structural repairs, the brick-surkhi cement plaster applied here in 2003-06 was removed and replaced with traditional lime plaster layers.*

