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Waterproofing Work of Existing Building in Mumbai

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Abstract - *Terrace or roof is an important segment in a building and it is exposed to the direct environmental conditions and climatic variations such as direct sunrise, rainfall, etc. So, it is important to make an effort and time to design and ensure that a proper protection system is implemented. Roof or Terrace is essentially comes under last stages of building construction therefore often gets neglected due to budgetary issues and the economic solution is not always favorable for the protection of the building. So, ignoring the economic burden you should make sure the protection of your property by implementing Terrace Waterproofing.*

Key Words: Waterproofing, Structure Elements, Society, Building, Cement Mortar, China Mosaic, Brick bat, Polymer.

1. INTRODUCTION

Our Project Name SIDBI (Small Industries Development Bank of India) Officers Quarters is located at Videocon Tower, Plot No. 25, Veera Desai Road, Andheri (W), Mumbai, Maharashtra. The building is a R.C.C. frame structure having Basement & Stilt + 10 storeys. Fieldwork started from 28th December, 2016 and the entire work was completed by 7th January, 2017. Preliminary drawing preparation, visual inspection and tapping was carried out simultaneously; results of the same are presented in this document.

2. PRINCIPLE

The building was investigated in detail for inspection from inside and outside thoroughly. We observed Leakages from existing I.P.S finish of the terrace floor to the below flats due to the damaged condition of the terrace waterproofing at some places. As the flat roof is constructed with reinforced concrete or cement so the building or a structure it has pores or capillary tracts to allow the inflow of water. Hence it needs Terrace Waterproofing because concrete itself is not water-resistant. It is important to adopt effective methods like Terrace Waterproofing, in order to resist the water seepage.

Before starting the actual work of Waterproofing of slabs it is highly recommended to conduct a water ponding test or flood test. For water ponding test the surface with water to a depth of 50 mm for 48 hours or longer. This tests the water tightness of the floor. The test is found satisfactory if there is no leakage and there is no damp patches observed on the surface of the floor.

3. OBSERVATIONS

Existing Terrace top of the building was of I.P.S finish. Leakages from terrace top to below flats has been observed at the time of survey. To validate the source we have conducted the water ponding test. After 48 hours, we inspect the flats below terrace and observe dampness patches on ceiling.

Fig -1: Water ponding Test

Fig -2: Leakages observed

4. RECOMMENDATION

However based on actual observation from inner side of the flat, dampness is observed due to leakage from terrace; it was a need of time to retrofit the terrace with injection grouting or waterproofing by brickbat coba method or chemical waterproofing or any other suitable method.

5. METHODOLOGY

Waterproofing with China Mosaic chips method was decided for this project which is one of the best method of waterproofing. This includes applying coating, IPS and china mosaic waterproofing methodology.

5.1 Execution of Work

Remove the existing IPS Top completely up to the brick bat layer with the help of breaker machine, to be used for puncturing & subsequently chisel & hammer using chisel at an angle to ensure that the existing brick bat does not get damaged. Dispose off the removed debris and clean the bare slab thoroughly.

Fig -3: After Breaking of IPS

Open the visible cracks on the top surface in V groove & fill the cracks with a paste of Approved Polymer, cement & water. Fill the gaps in the brickbats by applying two coats of Polymer Emulsion: Cement slurry of 1: 1 to the entire bare slab. All gaps to be filled properly and the entire bricks should be completely covered.

Apply the cement slurry over the levelled surface for smooth Ghutai. Polish the surface with metal float i.e. patra.

Carry out pond test by ponding water on the coated surface for a minimum 3 days.

Fig -4: Applying coating

Fig -5: Water ponding after complete of IPS

Spread the cement-mortar in 1:4 proportion with the thickness of 20 to 25mm. This bed is checked for levels and slops. Water is sprinkled on this bed and dry cement is spread on the work area.

Fig -6: Spreading Cement-Mortar

Fig -6: Fitting China Mosaic chips

Pieces of china mosaic are then pressed and fitted in position. The joints between these 2 pieces should not be more than 3 to 4 mm. Coving (Vatta) height to be maintained at 9" or 230mm. After laying of China mosaic pieces they are hammered with wooden mallet to achieve a uniform surface.

Fig -7: Pressing CM chips with Mallet

Fig -8: Surface left for drying

The surface is cured for at least 3 days. The surface is then cleaned with saw dust to remove access cement sticking to the glazed china mosaic. Completed work is then cured for 15 days.

Fig -8: Finished Surface

5.2 Materials Required

Table -1: List of Materials

Sr. No	Materials	Approved Brand
	Cement	Gujarat Ambuja, Ultratech, A.C.C.
	Sand	Pure River Sand
	Tiles	Shahabad Tiles
	Polymer & waterproofing compound	Sunanda polymer EP

6. CONCLUSIONS

Waterproofing is a fundamental construction requirement. Modern buildings are waterproof, using membranes and coatings to protect the integrity of the structure. However, every year a large number of households and commercial premises report damage and problems that may be associated with inadequate waterproofing of buildings. If you do not stop the penetration/seepage of water on time, it will cause serious damage to the building. The service life of a structure depends on its stability, and this is what affects the ingress of water. Therefore, the waterproofing of the building is very important, and in recent times more attention has been paid to it.

7. ACKNOWLEDGEMENT

This waterproofing work was done on proposed structure named "SIDBI (Small Industries Development Bank of India) Officers Quarters". We are thankful of them to letting us do/ perform all the activities. After successfully completion we received the work completion certificate from SIDBI.

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BIOGRAPHIES

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