

21379/Spec Ph-III/P&S/108 /MAP

20 Mar 2013

(All PMs)

SPECIFICATIONS FOR WATER PROOFING IN RCC ROOFS

1. Ref this Headquarters letter No 21378/Vendor Ph-III/P&S/03/MAP dt 29 Jun 2012.
2. Given in the succeeding sub paragraphs are the specifications for water proofing for RCC Roofs for the future projects of MAP Phase-II and Phase-III:
 - (a) **FOR STATIONS WITH NORMAL RAINFALL:** Water proofing treatment to exposed flat roof/terrace and roof of staircase hall, machine room and mumty shall be done as under:
 - (i) Clean the RCC slab surfaces including side's upto 300 mm high by wire brush, raking and cleaning of construction joints, if any.
 - (ii) Apply a coat of neat cement slurry admixed with approved integral liquid water proofing compound conforming to IS: 2645 as per manufacturer's recommendations over the RCC slab and sides upto 300 mm high.
 - (i) Lay 20 mm thick layer of cement mortar of mix 1:4 (1 cement: 4 coarse sand) admixed with approved liquid water proofing compound conforming to IS: 2645 and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.
 - (ii) Lay a layer of broken bricks/ brick bats (coba) 25 mm to 80 mm size with 50% cement mortar 1:4 (1 Cement: 4 coarse sand) admixed with approved integral liquid water proofing compound conforming to IS: 2645 to required slope.
 - (iii) Coving of radius 80 mm in cement concrete 1:2:4 admixed with integral liquid water proofing compound and finished with cement mortar 1:4 (1 cement: 4 coarse sand) admixed with approved integral liquid water proofing compound conforming to IS: 2645 is to be provided at the junction of horizontal surface & side walls.
 - (iv) After two days of curing apply second coat of cement slurry admixed with approved integral water proofing compound conforming to IS: 2645.
 - (v) Finish the surface with 20 mm thick jointless cement plaster 1:4 (1 cement: 4 coarse sand) admixed with approved integral liquid water proofing compound conforming to IS: 2645 including over the coving upto 300 mm height on sides walls and finishing the surface with trowel with neat cement and making with 300x 300 mm false square.
 - (vi) Average thickness of the above treatment shall be 125 mm and minimum thickness at Khurras shall be 65 mm.

(vii) **Khurra.** Khurras shall be provided to all inlet points of rain water pipes 450 x 450 mm with a minimum thickness of 65 mm in brick bat coba as described herein before in Para (a) (i) to (vii) including rounding the edges and making finishing the outlet complete.

(viii) The proportion of approved integral liquid water proofing compound conforming to IS: 2645 to be used in respect of cement shall be as laid down by the manufacturer of the particular water proofing compound.

(ix) The whole treated portion shall be flooded with water for two weeks for curing and testing. In case any leakage/seepage is noticed then the affected area shall be rectified and retested to the satisfaction of the Project Manager and DEPMC.

(b) **FOR STATIONS WITH HEAVY RAINFALL:**

(i) 3mm Thick with Non-Woven Polyester Matt. It is prefabricated five layered black finish water proofing membrane comprising of centre core of 170 gsm non- woven polyster matt sandwiched on both side by APP polymer modified bitumen which is protected on both sides by 20 micron thermofusible polyesthylene sheet. Composite thickness of the membrane including all five layers shall be 3 mm with non- woven polyester matt manufactured by reputed manufacturer and as specified. It is available in 1m width and variable length.

(ii) Important physical and chemical parameters of the membrane shall be as given in the table:-

SI No	No of Layers	Thickness	Elongation 23° C in longitudinal direction	Joint Strength in longitudinal and Transverse direction	TEAR STRENGTH IN LONGITUDINAL AND TRANSVERSE DIRECTION	Softening Point	Cold Flexibility
1	2	3	4	5	6	7	8
1.	FIVE LAYERED REINFORCED WITH NON-WOVEN POLYESTER MATT	3mm	40/50 N/ 5cm	650 N/ 450 N/5cm	300/ 250 N	150°	-2°

(iii) When tested in accordance with astm, D-5147 where proprietary brand Atactic polypropylene modified black finished is proposed to be used by the contractor they shall conform to all respects to the specification in the preceding paras. However, contractor should get the work done through authorized applicator. The material laying of APP Polymer modified membrane shall be done all as per SSR para 11.44.1 to 11.44.5 of SSR Part – (i) 2009.

(i) If Contarct specifies covering of membrane, then on Finished layer of water proofing treatment provide Kota stone/terrazzo tile/PCC tiles as shown on drgs with the following specification:

(aa) Provide 20 mm thick PCC tiles laid on 20 mm thick bedding layer in CM 1:3. Laying and jointing of tiles shall be carried out as per SSR Part I clause No 13:39 PCC tiles shall be conforming to IS 1237-1980 and be of size 25 cm X 25 cm OR.

(ab) Provided 22 mm thick terrazzo tiles of grey cement laid on 20 mm thick bedding layer in CM 1:3. Laying and jointing of tiles shall be carried out as per SSR Part I. Terrazzo tiles shall be conforming to IS and be of size 25 cm X 25 cm OR as specified in CA.

-Or-

(ac) Provide 20 to 25 mm thick Kota stone over 20 mm thick bedding layer in CM 1:4. Laying and jointing of Kota stone shall be carried out as specified in SSR Part I clause No 13.47. Size of Kota stone shall be 60 cm X 60 cm. Chajjas over balconies, doors, windows, ventilators shall be finished with plaster as specified mixed with water proofing compound as per manufactures instructions while concrete is green. Coving at junction of walls and chajja with PCC (1:2:4) type BO shall be done before plastering.

(ii) The work as specified above shall be executed through authorized applicators of manufacturer. The contractor shall furnish the following:

(aa) Quality confirmation from the manufacturer of the product, alongwith quality supplied.

(ab) Manufacturers test certificate.

(ac) Test certificates from any approved laboratory as directed by PM. The testing charges shall be borne by the contractor.

(ad) Authority letter in respect of applicator from the manufacturer of being authorized applicator.

(ae) Certificate from authorized applicator of having completed the work as per specifications.

(af) Adequate precautions to be taken to ensure that the membrane does not get punctured during execution.

3. This letter supersedes all letters on the subject issued previously.

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for DG MAP

Copy to:

DG Sectt	-	for information please
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