

## 20

## WATER PROOFING

Sl. No.	Description	Unit	Rate (Rs p)
20.01	<p>Providing and laying integral cement based treatment for water proofing on horizontal surface at all levels as directed by Engineer-in-Charge and consisting of :</p> <p>Ist layer of 20mm thick approved and specified rough stone slab over a 25mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound 'Impermo' of Snowcem or equivalent conforming to IS:2645 in the recommended proportion.</p> <p>Joints sealed and grouted with cement slurry mixed with water proofing compound</p> <p>(i) 2nd layer of 25mm thick cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportions.</p> <p>(ii) Finishing top with stone aggregate of 10mm to 12mm nominal size spreading @ 8 cudm/sqm thoroughly</p> <p>(iii) embedded in the 2nd layer.</p> <p><b>(Basis : 22.1 CPWD Analysis of Rates, 2012 Vol-I1)</b></p>		
	<p>(a) [25.1.1] - Using rough kota stone.</p>	sqm	1835.40
	<p>(b) [25.1.2] - Using rough red sand stone.</p>	sqm	996.90
20.02	<p>Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 20 mm thick with cement slurry mixed with water proofing compound 'Impermo' of Snowcem or equivalent conforming to IS:2645 in recommended proportions with a gap of 20mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:4 (1 cement : 4 coarse sand) 20mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge .</p> <p><b>(Basis : 22.2 CPWD Analysis of Rates, 2012 Vol-I1)</b></p>		
	<p>(a) [25.2.1] - Using rough Kota stone</p>	sqm	6184.30
	<p>(b) [25.2.2] - Using rough red sand stone.</p>	sqm	6611.40
20.03	<p>Providing and Placing in position suitable PVC water stops conforming to IS:12200 of Deep-Jyoti or equivalent for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :</p> <p><b>(Basis : 22.4 CPWD Analysis of Rates, 2012 Vol-I1)</b></p>		
	<p>(a) [25.4.1] - Serrated with central bulb ( 225mm wide, 8-11mm thick).</p>	m	496.10

Sl. No.	Description	Unit	Rate (Rs p)
	(b) [25.4.2] - Dumb bell with central bulb (180mm wide, 8mm thick).	m	421.70
	(c) [25.4.3] - Kickers ( 320 mm wide, 5mm thick ).	m	563.40
<b>20.04</b>	<p>Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with Armourcrete of M/s The Structural Water Proofing Company Pvt. Ltd. or Tapecrete of M/s CICO Engg. Service consisting of applying :</p> <p>First layer of slurry of cement @ 0.488 kg/sqm mixed with Armourcrete or Tapecrete @ 0.253 kg/sqm. This</p> <p>(a) layer will be allowed to air cure for 4 hours.</p> <p>Second layer of slurry of cement @ 0.242 kg/sqm mixed with Armourcrete or Tapecrete @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with</p> <p>(b) water curing for 48 hours.</p> <p><i>The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.</i></p> <p><b>(Basis : 22.5 CPWD Analysis of Rates, 2012 Vol-I1)</b></p>	sqm	246.10
<b>20.05</b>	<p>Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with Armourcrete of M/s The Structural Water Proofing Company Pvt. Ltd., or Tapecrete of M/s CICO Engg. Services consisting of applying :</p> <p>after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with Armourcrete or Tapecrete @</p> <p>(a) 0.253 kg/sqm.</p> <p>laying second layer of Fibre glass cloth manufactured by M/s The Structural Water Proofing Company Pvt. Ltd. when the first layer is still green. Overlaps of joints of</p> <p>(b) fibre cloth should not be less than 10 cm.</p> <p>third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with Armourcrete or Tapecrete @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30cm on parapet wall and</p> <p>(c) tucked into groove in parapet all around.</p> <p>fourth and final layer of brick tiling with cement mortar (which will be paid for separately . For the purpose of</p> <p>(d) measurement the entire treated surface will be measured.</p> <p><b>(Basis : 22.6 CPWD Analysis of Rates, 2012 Vol-I1)</b></p>	sqm	393.60

Sl. No.	Description	Unit	Rate (Rs p)
20.06	<p>Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of</p> <p>Applying and grouting a slurry coat of neat cement using 2.75 kg/sqm. of cement admixed with proprietary water proofing compound conforming to IS. 2645 over the</p> <p>(i) Laying cement concrete using broken bricks/brick bats 25 mm to 100mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with proprietary water proofing compound conforming to IS : 2645 over 20mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand ) admixed with proprietary water proofing compound conforming to IS : 2645 to required slope and treating similarly the adjoining walls upto 300 mm</p> <p>(ii) height including rounding of junctions of walls and After two days of proper curing applying a second coat of cement slurry admixed with proprietary water proofing compound conforming to IS : 2645.</p> <p>(iii) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with proprietary water proofing compound conforming to IS : 2645 and finally finishing the surface with trowel</p> <p>(iv) with neat cement slurry and making of 300x300 mm The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as</p> <p>(v) directed and specified by the Engineer-in-Charge :</p> <p><b>(Basis : 22.7 CPWD Analysis of Rates, 2012 Vol-I1)</b></p> <p>(a) [25.8.1] - With average thickness of 120mm and minimum thickness at khurra as 65 mm.</p>	sqm	1153.20
20.07	<p>Supplying and applying bituminous solution primer on roof and or wall surface at 0.24 litre per sqm.</p> <p><b>(Basis : 22.12CPWD Analysis of Rates, 2012 Vol-I1)</b></p>	sqm	39.30
20.08	<p>Deduct for omitting in water proofing treatment final course of spreading stone grit 6mm down size or pea sized gravel :</p> <p><b>(Basis : 22.13.1CPWD Analysis of Rates, 2012 Vol-I1)</b></p> <p>(a) [25.14.1] - At 6 cudm per sqm.</p> <p>(b) [25.14.2] - at 8 cudm per sqm.</p>	sqm	35.20
20.09	<p>Grading roof for water proofing treatment with</p> <p><b>(Basis : 22.14CPWD Analysis of Rates, 2012 Vol-I1)</b></p> <p>(a) [ ] - Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) .</p> <p>(b) [25.15.3] - Cement mortar 1:3 (1 cement : 3 coarse sand)</p> <p>© [ ] - Cement mortar 1:4 (1cement : 4 coarse sand)</p>	cum	7320.20
		cum	9883.70
		cum	8364.80

Sl. No.	Description	Unit	Rate (Rs p)
20.10	<p>Providing and fixing APP (Atactic Polypropylene Polymer) modified prefabricated five layer 2mm thick water proofing membrane, black finished reinforced with glass fibre matt manufactured by Bitumat Co. Ltd., Soprema, or Tamko consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sq. mt. by the same membrane manufacture of density at 25°C, 0.87 - 0.89 kg/ltr and viscosity 70 - 160 cps. Over the primer coat the layer of membrane shall be laid using Butane torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under :</p> <p>Joint strength in longitudinal and transverse direction at 23°C as 350/300 N/ 5cm. Tear strength in longitudinal and transverse direction as 60/80N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacture of membrane. <b>(Basis : 22.18 CPWD Analysis of Rates, 2012 Vol-I1)</b></p>		
	(a) [- 2mm (for corrugated roof sheets)	sqm	448.80
20.11	<p>Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer, 3mm thick water proofing membrane, black finished reinforced with glass fibre matt manufactured by Bitumat Co. Ltd., Soprema, General Membranes or Tamko consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sqm. by the same membrane manufactured of density at 25°C, 0.87 - 0.89 kg/ltr and viscosity 70 - 160 cps. Over the primer coat the layer of membrane shall be laid using butane torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under :</p> <p>Joint strength in longitudinal and transverse direction at 23°C as 350/300 N/5cm. Tear strength in longitudinal and transverse direction as 60/80N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane : <b>(Basis : 22.19CPWD Analysis of Rates, 2012 Vol-I1)</b></p>		
	(a) [25.20.1] - 3 mm thick	sqm	493.50

Sl. No.	Description	Unit	Rate (Rs p)
20.12	<p>Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3mm thick water proofing membrane, black finished reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sqm. by the same membrane manufacture of density at 25°C, 0.87-0.89 kg/ltr and viscosity 70-160 cps. Over the primer coat the layer of membrane shall be laid using Butane Torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under :</p> <p style="text-align: center;">Joint strength in longitudinal and transverse direction at 23°C as 650/450N/5cm. Tear strength in longitudinal and transverse direction as 300/250N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane : <b>(Basis : 22.20 CPWD Analysis of Rates, 2012 Vol-I1)</b></p>		
	(a) - 3 mm thick	sqm	554.90
20.13	<p>Extra for covering top of membrane with Geotextile, 120gsm non woven, 100% polyester of thickness 1 to 1.25mm bonded to the membrane with intermittent touch by heating the membrane by Butane Torch as per manufactures recommendation [for Item No. 16.18 to 16.20]. <b>(Basis : 22.21 CPWD Analysis of Rates, 2012 Vol-I1)</b></p>	sqm	88.50
20.14	<p>Providing and laying on the sloped Roof-slab, 30 mm thick jointless, sprayed, closed cell, UNOPS Certified CFC free-Lloyd Foam or equivalent spray Rigid Polyurethane foam conforming to IS : 13205 (density of foam being 40-45 kg/cum.) over a coat of polyurethane primer applied @ 5-6 sqm/lt. and Polyurethane based elastomeric Isothane EMA waterproofing system minimum @ 0.50 kg/sqm each coat, in 2 coats over Polyurethane foam insulations. <b>( 25.23 C.P.W.D. 2002 )</b></p>	sqm	1223.10
20.15	<p>Providing and laying Texa Water Proofing Membrane Sheet of 1.50mm thick, covering upto 0.20m height of dado and 0.10m overlapping over RCC flat roof terrace with emulsion paint as bonding material between the concrete and the sheet.</p>		
	(a) Terra Kota Colour	sqm	1180.70
	(b) Black Colour	sqm	1057.00
20.16	<p>Applying single coated cement slurry with water proofing chemical ( SUPER latex chemical) in proportion 1 : 4 : 7 ( 1 latex : 4 water : 7 cement ) including cleaning the treated surfaces with brushes etc. @ 0.08 kg/sqm</p>	sqm	76.40

Sl. No.	Description	Unit	Rate (Rs p)
20.17	Applying double coated cement slurry with water proofing chemical ( SUPER latex chemical) in proportion 1 : 4 : 7 ( 1 latex : 4 water : 7 cement ) including cleaning the treated surfaces with brushes etc. @ 0.158kg/sqm .	sqm	148.50
20.18	Providing and mixing water proofing chemical ( <b>PIDI PROOF POWDER or equivalent chemical</b> ) in plain and reinforced cement concrete work 1 : 1.5 : 3 , @ 1.0 % by weight of cement.	cum	343.1
20.19	Providing and mixing water proofing chemical ( <b>PIDIPROOF POWDER or equivalent chemical</b> ) in plain and reinforced cement concrete work 1 : 2 : 4 , @ 1.0% by weight of cement.	cum	274.50
20.20	Providing and mixing water proofing chemical ( <b>PIDIPROOF LW or equivalent chemical</b> ) in plain and reinforced cement concrete work 1 : 1.5 : 3 , @ 0.4 % by	cum	278.40
20.21	Providing and mixing water proofing chemical ( <b>PIDI PROOF LW or equivalent chemical</b> ) in plain and reinforced cement concrete work 1 : 2 : 4 , @ 0.4% by weight of cement	cum	222.70
20.22	Applying single coated <b>PIDIFIN-2K</b> or equivalent on the surface of cement concrete for prevention of water infiltration and dampness in water tanks, basement, terraces, etc. ) @ 0.925kg per sqm.	sqm	181.80
20.23	Applying double coated <b>PIDIFIN-2K or equivalent</b> on the surface of cement concrete for prevention of water infiltration and dampness in water tanks, basement, terraces, etc. ) @ 1.85kg per sqm.	sqm	316.40
20.24	Applying double coated <b>Pidicrete Multipurpose Binder (MPB)</b> to existing reinforcement and cement concrete for improving structural bonding of old and new concrete including cleaning, roughening etc. of the existing surface. @ 0.74 Litre per sqm.	sqm	369.20
20.25	Applying <b>Waxed</b> based membrane for curing all types of concrete and plastered surface, highway canal, ramps and walls, dry shake hardened floor hospitals, Dams, Industrial floors, runway, retaining wall etc. .	sqm	79.90
20.26	Applying double coated <b>PROOFCOTE BLACK equivalent</b> on the surface of cement concrete for prevention of water infiltration and dampness in water tanks, sunken slab, basement, terraces, etc. @ 0.55 Litre per sqm.	sqm	214.50

Sl. No.	Description	Unit	Rate (Rs p)
20.27	Applying <b>Repellin WR or equivalent</b> on cement painted surfaces, concrete,mortar, clay bricksurface, mangalore tiled roof, corrugated AC sheet roofing etc. for prevention of entry of moisture into the wall, efflorescence and growth of fungus.	sqm	197.50
20.28	Applying <b>Krystalline</b> or equivalent on cement painted surfaces, concrete,mortar, clay bricksurface, mangalore tiled roof, corrugated AC sheet roofing etc. for prevention of entry of moisture into the wall, efflorescence and growth of fungus.	sqm	151.40
<b>20.29 Special Water Proof Admixtures for Mortar</b>			
	(a) Cement mortar 1:1 ( <i>1 cement : 1 fine sand</i> )	cum	12543.20
	(b) Cement mortar 1:2 ( <i>1 cement :2 fine sand</i> )	cum	8851.50
	(c) Cement mortar 1:3 ( <i>1 cement : 3 fine sand</i> )	cum	7005.60
	(d) Cement mortar 1:4 ( <i>1 cement : 4 fine sand</i> )	cum	5524.70
	(e) Cement mortar 1:5 ( <i>1 cement : 5 fine sand</i> )	cum	4727.30
	(f) Cement Mortar 1:6 ( <i>1 cement : 6 fine sand</i> )	cum	6779.90
20.30	Applying single coated cement slurry with water proofing chemical (latex or equivalent chemical) in proportion 1 : 4 : 5 ( 1 latex : 4 water : 5 cement ) including cleaning the treated surfaces with brushes etc.	sqm	127.30
20.31	Applying double coated cement slurry with water proofing chemical (latex or equivalent chemical) in proportion 1 : 4 : 5 ( 1 latex : 4 water : 5 cement ) including cleaning the treated surfaces with brushes etc.	sqm	121.00
20.32	Extra for providing and mixing water proofing chemical (latex or equivalent chemical) @ 2kg per bag of cement		
	(a) 12mm cement plaster 1 : 3 ( <i>1 cement : 3 fine sand</i> ).	sqm	168.80
	(b) 12mm cement plaster 1 : 4 ( <i>1 cement : 4 fine sand</i> ).	sqm	126.60
	(c) 15mm cement plaster 1 : 3 ( <i>1 cement : 3 fine sand</i> ).	sqm	201.90
	(d) 15mm cement plaster 1 : 4 ( <i>1 cement : 4 sand</i> ).	sqm	150.50
	(e) 20mm cement plaster 1:3 (1 cement :3 sand)	sqm	262.30
	(f) 20mm cement plaster 1 : 4 ( <i>1 cement : 4 sand</i> ).	sqm	196.20
20.33	Extra for providing and mixing water proofing chemical (plastocrete or equivalent chemical) in plain and reinforced cement concrete work 1 : 1.5 : 3 , @ 2% by weight of cement.	cum	4121.80

Sl. No.	Description	Unit	Rate (Rs p)
20.34	Extra for providing and mixing water proofing chemical (plastocrete or equivalent chemical) in plain and reinforced cement concrete work 1 : 2 : 4 , @ 2% by weight of cement.	cum	3297.40
20.35	Applying double coated top seal (cement based polymer modified water proofing slurry coating on the surface of cement concrete for prevention of water infiltration and dampness in water tanks, basement, terraces, etc. ) @ 3kg per sqm.	sqm	1870.90
20.36	Applying double coated bonding chemical to existing reinforcement and cement concrete for improving structural bonding of old and new concrete including cleaning, roughening etc. of the existing surface. @ 0.55kg per sqm.	sqm	1231.20
20.37	Providing and applying ready to use, quick setting liquid water proofing compound Sika 4a or equivalent on cement mortar for preliminary waterproofing work on wet surfaces, prior to the installation of Noleek CP/Plastocrete-N/Plastocrete Plus Render (For OPC only)	cum	22264.20
	(a) Cement mortar 1:2		
	(b) Cement mortar 1:3	cum	11132.10
20.38	Applying priming coat with Top Seal 109hi for waterproofing on roofs etc. , crack bridging etc. on concrete structures .	sqm	144.40
20.39	Applying specially formulated 2 component acrylic polymer modified, cementitious, elastic coating Water proof, Top Seal 109 hi or equivalent for water proof coating and crack-bridging properties, impervious coating on roofs and concrete structures .		
	(a) Comp ' A ' - Top Seal 109hi - White Liquid.	sqm	873.10
	(b) Comp ' B ' Top Seal 109 hi - Grey Powder	sqm	242.10
20.40	Providing and mixing gord 703 W or equivalent for reducing capillary water absorption, efforescence, dirt penetration, growth of algae and fungietc. on new works such as roofs, water tanks, foundations etc. , in two coats :	sqm	602.60