
SUB HEAD : 22.0
WATER PROOFING

BUILDING WORK

22.0 Water Proofing

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
22.1	Providing and laying integral cement based treatment for water proofing on horizontal surfaces at all levels as directed by Engineer-in-charge and consisting of: I) 1st layer of 22 mm to 25 mm thick approved and specified rough stone slab over a 25 mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS:2645 in the recommended proportion over the leveling course (leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound. II) 2nd layer of 25 mm thick cement mortar 1:3 (1 cement:3 coarse sand) mixed with water proofing compound in recommended proportions. III) Finishing top with stone aggregate of 10 mm to 12 mm nominal size spreading @ 8 cum/sqm thoroughly embedded in the 2nd layer.					
22.1.1	Using rough kota stone. Details of cost for 10.30 sqm. Materials:					
	taper Cement mortar 1:3 for fixing of stone $10 \times 0.025 = 0.25$	cum	0.25	2848.95	(2112)	712.24
	Kota stone slabs = 10 sqm Wastage @ 10% = 1 sqm = 11 sqm	sqm	11	250.00	(1169)	2750.00
	Cartage $11 \times 0.025 @ 2330 \text{ kg/m}^3 = 0.64 \text{ t}$ Cement mortar 1:3 $10 \times 0.025 = 0.25 \text{ cum}$ Wastage @ 12% = 0.03 cum 0.28 cum	cum	0.64	145.720	(2216)	93.261
	Cement slurry. Bed $2 \times 10.30 @ 2 \text{ kg/m}^2 = 41.20 \text{ kg}$. joints $4 \times 3.7 \times 0.02 \times 0.037 = 0.011$ $25 \times 0.6 \times 0.02 \times 0.037 = 0.011$ 0.022 cum @ 1440kg/cum = 31.68 kg. $72.88 = 0.073 \text{ t}$	tonne	0.073	4408	(0367)	321.78
	Carriage of cement Water proofing material: Mortar = 0.25 cum 0.28 cum /		0.073	145.720	(2209)	10.638
	Cement 0.53 cum @ 5.1 q/cum = 2.70 quintal Slurry = 0.73 quintal 3.43 quintal @ 1 kg for 50 kg. of cement i.e. 4.85 kg.	kilogram	4.86	35.000	(1213)	170.10
	12 mm stone grit @ 8 cum/sqm $1 \times 10.30 \times 8 \times 1/1000 = 0.08 \text{ cum}$	cum	0.08	686.05	(0296)	54.884
	Carriage Labour for base mortar & kota stone laying i.e. slurry job.		0.03	0.000	(2202)	0.000
	Mason II nd class	per day	5.4	413.00	(0123)	2230.20
	Beldar	per day	6.5	306.00	(0114)	1989
	Coolie	per day	2.16	318.00	(0115)	686.88
	Labour for top layer & spreading stone grit Mason II nd class	per day	1.08	413.00	(0123)	446.04
	8elder	per day	1.08	306.00	(0114)	330.48
	Bhishti	per day	0.45	318.00	(0115)	143.1
	Sundries	1 time	6.24	2.12	(9999)	13.2288

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Add for water charges @ 1 %					107.50
	Total					10857.04 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					1525.414
	Total					12382.45 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					1857.37
	Cost of 10.3 sqm					14239.82
	Cost of 1 sqm					1382.51
	Add labour cess @ 1%					13.83
	Rate including labour cess					1396.34
				Say Rs.1396.30	per sqm	

22.1.2 Using rough red sand stone. .

Details of cost for 10.30 sqm.

Materials:

1st layer

Cement mortar 1 :3 for fixing of stone
10x0.025=0.25

Kota stone slabs = 10 sqm

Wastage @ 10% = 1 sqm

= 11 sqm

Cartage 11x0.025 @ 2330 kg/m'=0.64 t

Cement mortar 1:3 10x0.025 = 0.25 cum

Wastage @ 12% =0.03 cum 0.28 cum

Cement slurry.

Bed 2x10.30 @ 2 kg/m² = 41.20 kg.

joints

4x3.7x0.02x0.037 = 0.011

25x0.6x0.02x0.037=0.011

0.022 cum

@ 1440kg/cum 31.58 kq.

72.83 = 0.073 t

Carriage of cement

Water proofing material:

Mortar =0.25 cum

0.28 cum /

Cement 0.53 cum @ 5.1 q/cum = 2.70 quintal

Slkurry = 0.73qumtal

3.43 quintal

@ 1 kg for 50 kg. of cement i.e. 4.86 kq.

12 mm stone grit @ 8 cum/sqm

1x10.30x8x1/1000=0.08 cum

Carriage

Labour for base mortar & kota stone laying i.e. slurry job.

Mason II nd class

Beldar

Coolie

labour for top layer spreading stone grit

Mason II nd class

Beldar

Bhishti

Sundries

Add for water charges @ 1 %













Total

Add GST 12% on "X" (multiplying factor 0.1405)

Total


11992.94 (Y)

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Add for contractor's profit and over-heads @ 15% on "Y"					1798.94
	Cost of 10.3 sqm					13791.89
	Cost of 1 sqm					1339.02
	Add labour cess @ 1%					13.39
	Rate including labour cess					1352.41
	Say Rs.1352.40 per sqm					
22.2	Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 22 mm to 25 mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20 mm (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 1:3 (1 cement : 3 coarse sand) 20 mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :					
22.2.1	Using rough kota stone					
	Details of cost for 10.30 sqm.					
	Materials:					
	1st layer					
	Kota stone stabs=10 sqm					
	Wastage @ 10% = 1 sqm					
	= 11 sqm					
	Cartage 110.025 @ 2330kg/m ³ =0.64 t	sqm	11	250.00	(1169)	2750.00
	Cement slurry for jointing.	tonne	0.64	145.72	(2216)	93.26
	6x3.70 -22.20 m					
	7x2.78 =19.45 m					
	41.66 m					
	41.65x0.025x0.012 =0.013 cum					
	Cement slurry for filling 20 mm gap. 10x0.02					
	=0.200 cum					
	0.213 cum					
	0.213cum@ 1440 kg/cum=306.70 or 0.307 t	tonne	0.31	4408	(0367)	1366.48
	Carriage	tonne	0.31	145.72	(2209)	45.17
	Cement plaste 1:3 with neat cement punning	sqm	10	265.48	(13.13.1)	2654.78 (A)
					+ 13.26)	
	(Rate as per item no. 13.16.1)					
	Water proofing material					
	Cement slurry 0.31 t =310 kg.					
	Cement plaster 1:3@ 1 3.62 q/100 sqm136.20 kg.					
	446.20 kg					
	@ 1 kg per 50 kg of cen,ent=3.90 kg.	kilogram	8.90	35.00	(1213)	311.50
	Labour:					
	Fixing kota stone					
	Mason II nd dass	per day	6.50	369.00	(0124)	2398.50
	Beldar	per day	6.50	306.00	(0114)	1989.00
	Coolie	per day	2.16	318.00	(0115)	686.88
	Labour:					
	For applying cement slurry					
	Beldar	per day	4.70	306.00	(0114)	1438.20
	Sundries & scaffolding	1 time	7.00	2.12	(9999)	14.84
	Add for water charages @ 1% except on 'A'					110.94
	Total					13859.56 (X)
	Add GST 12% on "X" except A (multiplying factor 0.1405)					1574.27
	Total					15433.83 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y" except A					1916.86
	Cost of 10sqm					17350.68

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Cost of 1 sqm					1735.07
	Add labour cess @ 1%					17.35
	Rate including labour cess					1752.42
				Say Rs.1752.40	per sqm	
22.2.2	Using rough red sand stone.					
	Details of cost for 10.30'sqm.					
	Materials:					
	1st layer					
	Kota stone slabs=10 sqm					
	Wastage @ 10% = 1 sqm					
	= 11 sqm	sqm	11	220.00	(1166)	2420.00
	Cart3ge 110.025 2330kg/m ³ =0.54 t	tonne	0.64	145.72	(2216)	93.26
	Cement slurry for jointing.					
	6x3.70 =22.20 m					
	7x2.78 =19.45 m					
	41.66m					
	41.66x0.025x0.012 =0.013 cum					
	Cement slurry for filling 20 mm gap. 10x0.02					
	=0.200 cum					
	0.213 cum					
	0.213 cum@ 1440 kg/cum=306.70 or 0.307 t	tonne	0.31	4408.00	(0367)	1366.48
	Carriage	tonne	0.31	145.72	(2209)	45.17
	Cement plaste 1:3 witrneat cement punning	sqm	10	265.48	(13.13.1 + 13.26)	2654.78 (A)
	(Rate as per item no. 13.16.1)					
	Water profmg material					
	Cement slurry 0.31 t =- 310 kg.					
	Cement plaster 1:3 @ 13.62 q/100 sc^ii 3C.20 kg					
	446.20 kg					
	@ 1 kg per 50 kg of cement=8.90 kg	kilogram	8.9	35	(1213)	311.50
	Labour:					
	Fixing kota stone					
	mason II nd class	per day	6.5	369.00	(0124)	2398.50
	Beldar	per day	6.5	306.00	(0114)	1989.00
	Coolie	per day	2.16	318.00	(0115)	686.88
	Labour;					
	For applying cement slurry					
	Beldar	per day	4.7	306.00	(01 14)	1438.20
	Sundries & scaffolding	1 time	7	2.12	(9999)	14.84
	Add for water charages @ 1% except on 'A'					107.64
	Total					13526.26 (X)
	Add GST 12% on "X" except A (multiplying factor 0.1405)					1527.44
	Total					15053.70 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y" except A					1859.84
	Cost of 10 sqm					16913.54
	Cost of 1 sqm					1691.35
	Add labour cess @ 1%					16.91
	Rate including labour cess					1708.27
				Say Rs.1708.30	per sqm	

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
22.3	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C. kitchen and the like consisting of. (i) 1st course of applying cement slurry @ 4.4 kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions. (ii) 2nd course of 20 mm cement plaster 1:3 (1 cement 3 coarse sand) mixed with water proofing compound in recommended proportion; (iii) 3rd course of applying blown or/residual bitumen applied hot at 1.7 kg. per sqm of area. (iv) 4th course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sqm). Details of cost for 10 sqm Materials: Cement slurry @ 4.4 kg/sqm = 44.00 kg or 0.044 t tonne 0.044 4408.00 (0367) 193.95 Carriage tonne 0.044 145.72 (2209) 6.41 Cement plaster 1:3 (20 mm thick) Sqn'i 10 225.37 (13.13.1) 2253.72 (A) {Rate as per item no. 13.13.1 SH finishing} Bitumen blown or/and residual bitumen = 10 x 1.70 = 17 kg = 0.017 t tonne 0.017 34790.00 (0313) 591.43 Carriage of tar/bitumen tonne 0.017 163.93 (2211) 2.79 P.V.C. 400 micron thick sheet sqm 10 45.00 (3002) 450.00 Carriage 1 time 5 2.12 (9999) 10.60 Water proofing compound @ 1 kg per 50 kg or cement used Cement slurry = 44 kg Cement plaster 1:3 (20 mm thick) 10 x (13.62 x 100) / 100 = 136.2 / 180.2 kg kilogram 3.6 35.00 (1213) 126.00 Labour: Printer 02' 03' 0.2 391.00 (0131) 78.20 Beldar per day 1.33 306.00 (01 14) 406.98 Mistry per day 0.06 306.00 (0130) 18.36 Sundries 1 time 2.8 2.12 (9999) 5.94 Add for water charges @ 1 % for except on 'A' 18.91 Total 4163.28 (X) Add GST 12% on "X" except A (multiplying factor 0.1405) 268.29 Total 4431.58 (Y) Add for contractor's profit and over-heads @ 15% on "Y" except A 326.68 Cost of 10 sqm 4758.26 Cost of 1 sqm 475.83 Add labour cess @ 1% 4.76 Rate including labour cess 480.59 Say Rs.480.60 per sqm					
22.4	Providing and Placing in position suitable PVC water stops for construction/expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete					
22.4 1	Serrated with central of (225 mm wide, 8-11 mm thick) Details of cost for 100 metre Materials: Water stop serrated with bulb metre 100.00 200.00 (7427) 20000.00 Labour: Beldar per day 2 306.00 (0114) 612.00 Sundries & wire etc. 1 time 10 2.12 (9999) 21.20 Total 20633.20 Add for water charges @ 1% 206.33 Total 20839.53 (X)					


 710 BCD/SOR_11th Edition_2022

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Add GST 12% on "X" (multiplying factor 0.1405)					2927.95
	Total					23767.49 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					3565.12
	Cost of 100 m					27332.61
	Cost of 1 m					273.33
				Say	Rs.273.30	per metre
	Note: Analysis for the following items is same except code Nos.					
22.4.2	Dumb bell with Central bulb (180 mm wide. 8 mm thick)					
	Details of cost for 100 metre					
	Materials:	metre	100	160.00	(7428)	16000.00
	Water stoep serrated with bulb					
	Labour:					0.00
	Beldar	per day	2	306.00	(0114)	612.00
	Sundreis & wire etc.	1 time	10	2.12	(9999)	21.20
	Add for water charges @ 1%					166.33
	Total					16799.53 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					2360.33
	Total					19159.87 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					2873.98
	Cost of 100m					22033.85
	Cost of 1 m					220.34
	Add labour cess @ 1%					2.20
	Rate including labour cess					222.54
				Say	Rs.222.50	per metre
22.4.3	Kickers (320 mm wide 5mm thick)					-
	Details of cost for 100 metie					
	Materials:					
	Water stoep serrated with bulb	metre	100.00	160.00	(7429)	16000.00
	Labour:					
	Beldar	per day	2.00	306.00	(0114)	612.00
	Sundreis & wire etc.	1 time	10	2.12	(9999)	21.20
	Add for water charges @ 1 %					166.33
	Total					16799.53 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					2360.33
	Total					19159.87 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					2873.98
	Cost of 100 m					22033.85
	Cost of 1 m					220.34
	Add labour cess @ 1%					2.20
	Rate including labour cess					222.54
				Say	Rs.222.50	per metre
22.5	Providing and laying in situ five course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg. per sqm, 2nd & 4th courses of bonding material@ 1.60 kg. per sqm which shall consist of blown type bitumen of grade 85/25 conforming to IS: 702, third layer of glass fibre tissue course as specified, fifth, the top most layer of stone grit 6 mm and down size or pea-sized gravel sprad @ 6 dm³ per sqm including preparation of surface excluding grading for slope etc. complete.					
	Details of cost for 30 sqm					
	Materials:					
	Galss fibre tissue 30 sqm.					

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Add 10% for wastage = 3 sqm					
	Total = 33 sqm.	sqm	33	75.00	(7233)	2475.00
	Bitumen primer 0.4.30 = 12 kg.	litre	12	47.00	(0316)	564.00
	Bonding material 1.6 kg.x30x2 = 95 kg.	tonne	0.096	34790.00	(0313)	3339.84
	Bitumen (Blown/residual type)					
	pea-size gravel	cum	0.18	800.00	(1177)	144.00
	Carriage of bitumen primer	tonne	0.12	163.93	(2211)	19.67
	Carriage of glass fibre	1 time	3	2.12	(9999)	6.36
	Carriage of pea-sized gravel	cum	0.18	163.93	(2311)	29.51
	Fuel(Steam coal)	quintal	0.29	440.00	(0370)	127.60
	Carriage of fuel	100 metre	0.029	0.00	(2220)	0.00
	Preparing roof surface, cutting grooves and making good the same.	1 time	51.75	2.12	(9999)	109.71
	Labour:					
	Painter	per day	2.7	391.00	(0131)	1055.70
	Beldar	per day	4.05	306.00	(0114)	1239.30
	Mistry	per day	0.23	306.00	(0130)	70.38
	Sundries,brushes etc.	1 time	2.6	2.12	(9999)	5.51
	Add for water charges @ 1%					91.87
	Total					9278.45 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					1303.62
	Total					10582.07 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					1587.31
	Cost of 30 sqm					12169.38
	Cost of 1 sqm					405.65
	Add labour cess @ 1%					4.06
	Rate including labour cess					409.71

Say Rs.409.70 per sqm

- 22.6 Providing and laying in situ seven course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 Kg. per sqm . 2nd . 4th & 6th courses of bonding material @ 1.50 kg. per sqm . which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702 . third and fifth layers of glass fibre tissue course as specified . seventh , the top pea-sized gravel spread @ 6 dm' per sqm , including preparation of surface excluding grading for slope etc. complete.**

Details of cost for 30.00 sqm

Cost of materials

Glass fibre tissue (Two layers)

2x30 =60 sqm

Add 10 % for wastage 6 sqm 66 sqm

Bitumen primer 0.4 x 30 = 12 kg

Bonding material (Three courses)

Bitumen (Blown or residual type)

48x3 = 144 kg

Pea - size gravel

Carriage of bitumen primer

Carriage of glass fibre tissue

Carriage of pea-size gravel

Fuel (steam coal)

Carriage of fuel

Preparing roof surface . cutting grooves and

making good the same













Labour:

Painter

Beldar

Mistry

sqm	66	75.00	(7233)	4950.00
litre	12	47.00	(0316)	564.00
tonne	0.144	34790.00	(0313)	5009.76
cum	0.18	800.00	(1177)	144.00
tonne	0.156	163.93	(2211)	25.57
1 time	3	2.12	(9999)	6.36
cum	0.18	163.93	(2311)	29.51
quintal	0.29	440.00	(0370)	127.60
100 metre	0.029	0.00	(2220)	0.00
1 time	51.75	2.12	(9999)	109.71
per day	3.78	391.00	(0131)	1477.98
per day	5.67	306.00	(0114)	1735.02
per day	0.32	306.00	(0130)	97.92

712

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Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Sundries , brushes etc .	1 time	2.6	2.12	(9999)	5.51
	Ado for water charges @ 1 %					142.83
	Total					14425.77 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					2026.82
	Total					16452.59 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					2467.89
	Cost of 30 sqm					18920.48
	Cost of 1 sqm					630.68
	Add labour cess @ 1%					6.31
	Rate including labour cess					636.99

Say Rs.637.00 per sqm

- 22.7 Providing and laying in situ nine course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg. per sqm , 2nd , 4th , 6th , 8th courses of bonding material @ 1.60 kg per sqm . which shall consist of blown tyoe bitumen of grade 85/25 conforming to IS :702 . third , fifth and seventh courses of fiass fibre tissue . as specified , ninth , the top most layer of stone grit 6 mm and down size or pea-sized gravel spread @ 6 dm⁷ per sqm including preparation of surface excluding grading for slope etc. compete.**

Details of cost for 30.00 sqm

Materials:

Glass fibre tissue (three layers) 3x30





= 90. sqm .

Add 10% for wastage	9 sqm	sqm	99.00	75.00	(7233)	7425.00
Bitumen primer		litre	12.00	47.00	(0316)	564.00
Bitmen blown /residual type 4 coarse x 48 = 192 kg		tonne	0.19	34790.00	(0313)	6679.68
Pea - size gravel		cum	0.18	800.00	(1177)	144.00
Carnage of glass fibre tissue		1 time	4.00	2.12	(9999)	8.48
Carriage of pea - sized gravel		cum	0.18	163.93	(2311)	29.51
Carriage of bitumen and primer		tonne	0.20	163.93	(2211)	33.44
Fuel (Steam coai) 2x .192 = 384 quintal		quintal	0.38	440.00	(0370)	168.96
Carriage of fuel	'= 100 metre		0.04	0.00	(2220)	0.00
Preparing roof surface . cutting , grooves and making good the same		1 time	51.75	2.12	(9999)	109.71

Labour:

Painter	per day	4.86	391.00	(0131)	1900.26
Beldar	per day	7.29	306.00	(0114)	2230.74
Mistry	per day	0.10	306.00	(0130),	30.60
Sundries , brushes etc.	1 time	2.60	2.12	(9999)	5.51
Add for water charges @ 1 %					193.30
Total					19523.19 (X)
Add GST 12% on "X" (multiplying factor 0.1405)					2743.01
Total					22266.20 (Y)
Add for contractor's profit and over-heads @ 15% on "Y"					3339.93
Cost of 30 sqm					25606.13
Cost of -1 sqm					853.54
Add labour cess @ 1%					8.54
Rate including labour cess					862.08

Say Rs.862.10 per sqm

714     BCD/SOR_11th Edition_2022

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Bhisti	per day	0.45	332.00	(0101)	149.40
	Add for water charges @ 1% on all except 'A'					47.90
	Total					6915.77 (X)
	Add GST 12% on "X" except A (multiplying factor 0.1405)					679.70
	Total					7595.47 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y" except A					827.61
	Cost of 10 sqm					8423.08
	Cost of 1 sqm					842.31
	Add labour cess @ 1%					8.42
	Rate including labour cess					850.73
	Say Rs.850.70 per sqm					

- 22.9.1 Providing and laying in situ seven course water proofing treatment with APP (Atactic polypropylene) modified Polymeric membrane over roof consisting of first coat of bitumen primer @ 0.40Kg per sqm, 2nd, 4th & 6th courses of bonding material @ 1.20 Kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd and 5th layers of roofing membrane APP modified Polymeric membrane 1.5mm thick of 2.25 Kg/sqm weight consisting of five layers prefabricated with centre core as 20micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20micron HMHDPE film. 7th, the top most layer shall be finished with brick tiles of class designation 100 grouted with cement mortar 1:3 (Icement:3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12mm layer of cement mortar 1:3 (1 cement: 3 fine sand) and finished neat which shall be paid for separately .**

Details of cost for 30 sqm

MATERIAL

APP modified polymeric felt (two layers) 1.5

mm thick = 2x30 = 60 sqm

Add 10% wastage = 6 sqm

Total = 66 sqm

Bitumen primer 0.4x30 = 12

Bitumen (Blown/ residual type) 3x36 = 108 kg

= 0.108 tonne

Carriage of bitumen primer

Carriage of polymeric felt

Fuel (steam coal)

Carriage of fuel

Preparing roof surface, cutting grooves and

making good the same

LABOUR

Painter

Beldar

Mistry

Sundries, brushes etc

TOTAL

Add 1 % for water charges

TOTAL

Add GST 12% on "X" (multiplying factor 0.1405)

Total

Add for contractor's profit and over-heads @ 15% on "Y"

Cost for 30 sqm

Cost for 1 sqm

Add labour cess @ 1%

Rate including labour cess













Say Rs.531.00 per sqm

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
22.9.2	Providing and laying in situ five course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric membrane over roof consisting of first coat of bitumen primer @ 0.40Kg per sqm, 2nd & 4th courses of bonding material @ 1.20 Kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS: 702, 3rd layer of roofing membrane APP modified Polymeric membrane 2.0mm thick of 3.00 Kg/sqm weight consisting of five layers prefabricated with centre core as IOmicron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20micron HMHDPE film. 5th, the top most layer shall be finished with brick tiles of class designation 100 grouted with cement mortar 1:3 (1 cement: 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat which shall be paid for separately as per DSR Item No. 12.19.					
	Details of cost for 30 sqm					
	MATERIAL					
	APP modified polymeric felt (two layers) 2.0 mm thick =30 sqm					
	Total = 33 sqm	sqm	33.00	120.00	(8201)	3960.00
	Bitumen primer 0.4x30 = 12	litre	12.00	47.00	0316	564.00
	Bitumen (Blown/ residual type) 1.20x30x2 =72 kg = 0.072 tonne	tonne	0.07	34790.00	0313	2504.88
	Carriage of bitumen primer	tonne	0.08	163.93	2211	13.77
	Carriage of polymeric felt	L.S.	7.80	2.12	9999	16.54
	Fuel (steam coal)	quintal	0.17	440.00	0370	76.56
	Carriage of fuel	tonne	0.02	60.81	2200	1.06
	Preparing roof surface, cutting grooves and making good the same	L.S.	134.55	2.12	9999	285.25
	LABOUR					
	Painter	Day	1.58	391.00	0131	617.78
	Beldar	Day	2.37	306.00	0114	725.22
	Mistry	Day	0.13	306.00	0130	39.78
	Sundries, brushes etc	L.S.	6.76	2.12	9999	14.33
	TOTAL					8819.16
	Add 1 % for water charges					88.19
	TOTAL					8907.35 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					1251.48
	Total					10158.84 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					1523.83
	Cost for 30 sqm					11682.66
	Cost for 1 sqm					389.42
	Add labour cess @ 1%					3.89
	Rate including labour cess					393.31

Say Rs.393.30 per sqm

- 22.9.3 Providing and laying in situ seven course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric membrane over roof consisting of first coat of bitumen primer @ 0.40Kg per sqm, 2nd, 4th & 6th courses of bonding material @ 1.20 Kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd and 5th layers of roofing membrane APP modified Polymeric membrane 2.0mm thick of 3.00 Kg/sqm weight consisting of five layers prefabricated with centre core as 1 OOmicon HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20micron HMHDPE film. 7th, the top most layer shall be finished with brick tiles of class designation 100 grouted with cement mortar 1:3 (1 cement: 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement: 3 fine sand) and finished neat which shall be paid for separately .**

Details of cost for 30 sqm

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	MATERIAL					
	APP modified polymeric felt (two layers) 2.0 mm thick = 3x30 = 60 sqm					
	Add 10% wastage = 6 sqm					
	Total = 66 sqm	sqm	66.00	120.00	(8201)	7920.00
	Bitumen primer 0.4x30 = 12	litre	12.00	47.00	(316)	564.00
	Bitumen (Blown/ residual type) 3course x 36 = 108 kg = 0.108 tonne	tonne	0.11	34790.00	(0313)	3757.32
	Carriage of bitumen primer	tonne	0.12	163.93	(2211)	19.67
	Carriage of polymeric felt	L.S.	7.80	2.12	(9999)	16.54
	Fuel (steam coal)	quintal	0.17	440.00	(0370)	76.56
	Carriage of fuel	tonne	0.02	60.81	(2200)	1.06
	Preparing roof surface, cutting grooves and making good the same	L.S.	134.55	2.12	(9999)	285.25
	LABOUR					
	Painter	Day	2.16	391.00	(0131)	844.56
	Beldar	Day	3.24	306.00	(0114)	991.44
	Mistry	Day	0.18	306.00	(0130)	55.08
	Sundries, brushes etc	L.S.	6.76	2.12	(9999)	14.33
	TOTAL					14545.80
	Add 1% for water charges					145.46
	TOTAL					14691.26 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					2064.12
	Total					16755.38 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					2513.31
	Cost for 30 sqm					19268.69
	Cost for 1 sqm					642.29
	Add labour cess @ 1%					6.42
	Rate including labour cess					648.71

Say Rs.648.70 per sqm

- 22.10 Providing and laying six courses water proofing treatment with bitumen felt over roofs consisting of first, third and fifth courses of blown or / and residual bitumen applied hot at 1.45, 1.20 and 1.70 kg per square metre of area respectively, second and fourth courses of roofing felt type 2 grade I (fibre base self finished bitumen felt) six and final courses of stone grit 6 mm and down size or pea sized gravel spread at 6 cubic decimeter per sqm including preparation of surface, excluding grading, compete.**

Details of cost for 30 sqm

Blown bitumen applied hot

(1.45+1.20+1.70)x30 = 130.5 kg.

Blown type petroleum bitumen of penetration 85/25 of approved quality	tonne	0.1305	34790.00	0313	4540.095
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Bitumen felt type B grade I (fibre base self finished bitumen felt)

60 sqm. + Add for over lapping @ 10% = 6 sqm. Total =66 sqm

Bitumen felt fibre base (vegetable or animal):Type 2 grade 1	sqm	66	70.00	0318	4620
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Carriage of Tar bitumen (0.131 t+2.22x.001x66 = 0.275t)	tonne	0.215	163.93	2211	35.24495
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Stone grit 6 mm and down size or pea sized gravel 30x6=180cudm	cum	0.18	800.00	1177	144
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CARRIAGE:

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Carriage of Stone aggregate below 40 mm nominal size	cum	0.18	0.00	2202	0
	Fuel (Steam coal) = 2 quintals/t of bitumen i.e. 0.1305=0.261q					
	Coal (steam)	quintel	0.261	440.00	0370	114.84
	Carriage of steam coal	tonne	0.0261	60.81	2200	1.587141
	Praparing roof surface, sutting groove and making good etc.	L.S.	134.55	2.12	9999	285.246
	LABOUR					
	Painter	day	4.32	391.00	0131	1689.12
	Beldar	day	6.48	306.00	0114	1982.88
	Mistry	day	0.36	306.00	0130	110.16
	Sundries, brushes etc.	L.S.	6.76	2.12	9999	14.3312
	TOTAL					13537.50 W
	Add 1 % Water charges on "W"					135.38
	TOTAL					13672.88 (X)
	Add GST on "X" (multiplying factor 0.1405)					1921.04
	TOTAL					15593.92 (Y)
	Add 15% CPOH on "Y"					2339.09
	TOTAL					17933.01
	Add Cess @ 1% on					179.33 Z
	Rate including labour cess					18112.34
	Cost of 30.00 Sqm.					18112.34
	Cost of 1.00 Sqm.					603.74
	Say			Say	Rs.603.70	per sqm

- 22.11 Providing and laying six courses water proofing treatment with bitumen felt over roofs consisting of first, third and fifth courses of blown or / and residual bitumen applied hot at 1.45, 1.20 and 1.70 kg per square metre of area respectively, second and fourth courses of roofing felt type 2 grade II (glass fibre base self finished bitumen felt) and sixth and final course of stone grit 6 mm and down size or pea sized gravel spread at 6 cubic decimeter per sqm including preparation of surface but excluding grading, complete.**

Details of cost for 30 sqm

Blown bitumen applied hot

$(1.45+1.20+1.70) \times 30 = 130.5$ kg.

Blown type petroleum bitumen of penetration	tonne	0.1305	34790.00	0313	4540.10
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85/25 of approved quality

Bitumen felt type B grade I (fibre base self finished bitumen felt)

60 sqm. + Add for over lapping @ 10% = 6 sqm. Total =66 sqm

Bitumen felt fibre base (vegetable or animal):Type 2 grade 1	sqm	66	70.00	0318	4620.00
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Carriage of Tar bitumen	tonne	0.334	163.93	2211	54.75
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$(0.131 \text{ t} + 2.22 \times 0.001 \times 66 = 0.275 \text{ t})$

Stone grit 6 mm and down size or pea sized gravel 30x6=180cudm	cum	0.18	800.00	1177	144.00
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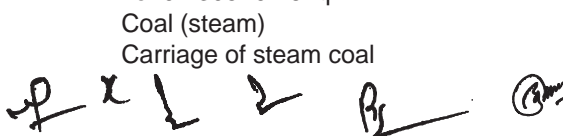
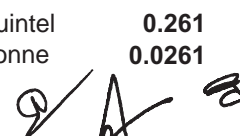
CARRIAGE:

Carriage of Stone aggregate below 40 mm nominal size	cum	0.18	0.00	2202	0.00
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Fuel (Steam coal) = 2 quintals/t of bitumen i.e. 0.1305=0.261q

Coal (steam)	quintel	0.261	440.00	0370	114.84
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Carriage of steam coal	tonne	0.0261	60.81	2200	1.59
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 718
 
 BCD/SOR_11th Edition_2022

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Praparing roof surface, sutting groove and making good etc.	L.S.	134.55	2.12	9999	285.25
	LABOUR					
	Painter	day	4.32	391.00	0131	1689.12
	Beldar	day	6.48	306.00	0114	1982.88
	Mistry	day	0.36	306.00	0130	110.16
	Sundries, brushes etc.	L.S.	6.76	2.12	9999	14.33
	TOTAL					13557.01 W
	Add 1 % Water charges on "W"					135.57
	TOTAL					13692.58 (X)
	Add GST on "X" (multiplying factor 0.1405)					1923.81
	TOTAL					15616.39 (Y)
	Add 15% CPOH on "Y"					2342.46
	TOTAL					17958.85
	Add Cess @ 1% on					179.59 Z
	Rate including labour cess					18138.44
	Cost of 30.00 Sqm.					18138.44
	Cost of 1.00 Sqm.					604.61
	Say			Say	Rs.604.60	per sqm

22.12 Supplying and applying bituminous solution primer on roof and / or wall surface at 0.24 litre per sqm.

Details of cost for 10 sq. metres

MATERIAL						
Bitumen solution primer of approved quality	litre	2.4	47.00	(0316)		112.80
CARRIAGE	L.S.	1.43	2.12	(9977)		3.03
LABOUR						
Painter	day	0.17	391.00	(0131)		66.47
Beldar	day	0.17	306.00	(0114)		52.02
Sundries brushes etc.	L.S.	13.52	2.12	(9999)		28.66
TOTAL						262.98 W
Add 1 % Water charges on "W"						2.63
TOTAL						265.61 (X)
Add GST on "X" (multiplying factor 0.1405)						37.32
TOTAL						302.93 (Y)
Add 15% CPOH on "Y"						45.44
TOTAL						348.37
Add Cess @ 1% on						3.48 Z
Rate including labour cess						351.86
Cost of 10.00 Sqm.						351.86
Cost of 1.00 Sqm.						35.19
Say				Say	Rs.35.20	per sqm

22.13 Deduct for omitting in water proofing treatment final course of spreading stone grit 6 mm down size or pea sized gravel :

22.13.1 at 6 cudm per sqm

Details of cost for 10 sqm.

MATERIAL						
Stone grit 6 mm and down size or pea sized gravel	cum	0.06	800.00	(1177)		48
6x10 = 60 cudm						
Carriage of Stone aggregate below 40 mm nominal size	cum	0.06	0.00	(2202)		0
Labour for screening and spreading grit	L.S.	21.58	2.12	(9999)		45.7496

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Sundries	L.S.	6.76	2.12	(9999)	14.3312
	TOTAL					108.08 W
	Add 1 % Water charges on "W"					1.08
	TOTAL					109.16 (X)
	Add GST on "X" (multiplying factor 0.1405)					15.34
	TOTAL					124.50 (Y)
	Add 15% CPOH on "Y"					18.67
	TOTAL					143.17
	Add Cess @ 1% on					1.43 Z
	Rate including labour cess					144.61
	Cost of 10.00 Sqm.					144.61
	Cost of 1.00 Sqm.					14.46
	Say		Say	Rs.14.50	per sqm	

22.13.2 at 8 cudm per sqm

Details of cost for 10 sqm.

MATERIAL

Stone grit 6 mm and down size or pea sized gravel	cum	0.08	800.00	(1177)	64
6x10 = 60 cudm					
Carriage of Stone aggregate below 40 mm nominal size	cum	0.08	0.00	(2202)	0
Labour for screening and spreading grit	L.S.	26.91	2.12	(9999)	57.0492
Sundries	L.S.	6.76	2.12	(9999)	14.3312
TOTAL					135.38 W
Add 1 % Water charges on "W"					1.35
TOTAL					136.73 (X)
Add GST on "X" (multiplying factor 0.1405)					19.21
TOTAL					155.95 (Y)
Add 15% CPOH on "Y"					23.39
TOTAL					179.34
Add Cess @ 1% on					1.79 Z
Rate including labour cess					181.13
Cost of 10.00 Sqm.					181.13
Cost of 1.00 Sqm.					18.11
Say		Say	Rs.18.10	per sqm	

22.14 Grading roof for water proofing treatment with**22.14.1 Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)**

Details of cost for one cum.

Stone Aggregate (Single size) : 20 mm nominal size	cum	0.67	595.36	(0295)	398.89
Stone Aggregate (Single size) : 10 mm nominal size	cum	0.22	657.91	(0297)	144.74
Carriage of Stone aggregate below 40 mm nominal size	cum	0.89	0.00	(2202)	0.00
Coarse sand (zone III)	cum	0.45	0	(0982)	0.00
Carriage of Coarse sand	cum	0.45	0	(2203)	0.00
Portland Cement (OPC-43 grade)	tonne	0.32	4408.00	(0367)	1410.56
Carriage of Cement	tonne	0.32	145.72	(2209)	46.63
LABOUR					0.00
Beldar	day	1.63	306.00	(114)	498.78
Bhisti	day	0.7	332.00	(101)	232.40
Mason (brick layer) 1st class	day	0.1	413.00	(123)	41.30
Sundries, brushes etc.	L.S.	14.3	2.12	(9999)	30.32









720





BCD/SOR_11th Edition_2022

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Hire charges of Concrete Mixer 0.25 to 0.40 cum with hooper	day	0.07	800.00	(0002)	56.00
	Vibrator (Needle type 40 mm)	day	0.07	369.00	(0012)	25.83
	Sundries for laying in terrace	L.S.	45.76	2.12	(9999)	97.01
	TOTAL					2982.46 W
	Add 1 % Water charges on "W"					29.82
	TOTAL					3012.28 (X)
	Add GST on "X" (multiplying factor 0.1405)					423.23
	TOTAL					3435.51 (Y)
	Add 15% CPOH on "Y"					515.33
	TOTAL					3950.84
	Add Cess @ 1% on					39.51 Z
	Rate including labour cess					3990.34
	Cost of 1.00 Sqm.					3990.34
	Say			Say Rs.3990.30		per cum

22.14.2 Cement mortar 1:3 (1 cement : 3 coarse sand)

Details of cost for one cum.

MATERIAL

Cement mortar 1:3

Rate as per Item No.2112 of SH:Mortars

LABOUR

Mason (average)

Beldar

Bhisti

Coolie

Sundries

TOTAL

Add 1 % Water charges on "W"

TOTAL

Add GST on "X" (multiplying factor 0.1405)

TOTAL

Add 15% CPOH on "Y"

TOTAL

Add Cess @ 1% on

Rate including labour cess

Cost of 1.00 cum

Say**Say Rs.7544.90 per cum****22.14.3 Cement mortar 1:4 (1 cement : 4 coarse sand)**

Details of cost for one cum.

MATERIAL

Cement mortar 1:4 (1 cement : 4 coarse sand)

Rate as per Item No.3.9of SH:Mortars

LABOUR

Mason (average)

Beldar

Bhisti

Coolie

Sundries

TOTAL

Add 1 % Water charges on "W"

TOTAL

Add GST on "X" (multiplying factor 0.1405)

TOTAL

Add 15% CPOH on "Y"

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	TOTAL					6920.74
	Add Cess @ 1% on					69.21 Z
	Rate including labour cess					6989.94
	Cost of 1.00 cum					6989.94
	Say					Say Rs.6989.90 per cum
22.18	Providing and fixing APP (Atactic Polypropylene Polymer) modified prefabricated five layer 2 mm thick water proofing membrane, black finished reinforced with glass fibre matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 litre/ sqm by the same membrane manufacture of density at 25°C, 0.87 - 0.89 kg/ litre 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 : 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.					
22.18.1	2 mm (for corrugated roof sheets).					
	Details of cost for 30 sqm.					
	MATERIAL:					
	A.P.P. modified 2 mm thick - 30 sqm					
	Add 10% for wastage = 3 sqm					
	Total = 33 sqm					
	A.P.P. modified 2 mm thick membrane	sqm	33	130.00	8203	4290.00
	reinforced with glass fibre matt					
	Bitumen primer for bitumen membrane	litre	12	85.00	8206	1020.00
	Carriage of tar / bitumen	tonne	0.012	106.64	2211	1.28
	Carriage of bitumen membrane	L.S.	7.8	2.12	9999	16.54
	Fuel					
	Commercial LPG in cylinder	kg	7	84.00	1241	588.00
	Preparing roof surface, cutting grooves	L.S.	49.53	2.12	9999	105.00
	LABOUR:					
	Skilled torch operator for laying tack	day	2.16	388.00	159	838.08
	Mistry	day	0.18	306.00	130	55.08
	Beldar	day	3.24	306.00	114	991.44
	Sundries, brushes, bitumen torch etc.	L.S.	23.4	2.12	9999	49.61
	TOTAL					7955.03
	Add Water Charges @ 1%					79.55
	TOTAL					8034.58 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					1128.86
	Total					9163.44 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					1374.52
	Cost for 30 sqm					10537.95
	Cost of 1 sqm					351.27
	Add labour cess @ 1%					3.51
	Rate including labour cess					354.78
	Say					Say Rs.354.80 per sqm





Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
22.19	Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer, 3 mm thick water proofing membrane, black finished reinforced with glass fibre matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 litre/ sqm by the same membrane manufactured of density at 25° C, 0.87 - 0.89 kg/ litre 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 : Joint strength in longitudinal and transverse direction at 23°C as 350/300 N/5 cm. 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.					
22.19.1	3 mm thick.					
	Details of cost for 30 sqm.					
	MATERIAL:					
	A.P.P. modified 3mm thick = 30 sqm					
	Add 10% for wastage = 3 sqm.					
	Total = 33 sqm					
	A.P.P. modified 3 mm thick membrane reinforced with glass fibre matt	sqm	33	190.00	8204	6270.00
	Bitumen primer for bitumen membrane	litre	12	85.00	8206	1020.00
	Carriage of tar / bitumen	tonne	0.012	106.64	2211	1.28
	Carriage of bitumen membrane	L.S.	7.8	2.12	9999	16.54
	Fuel					
	Commercial LPG in cylinder	kg	7	84.00	1241	588.00
	Preparing roof surface, cutting grooves	L.S.	49.53	2.12	9999	105.00
	LABOUR:					
	Skilled torch operator for laying tack	day	2.16	388.00	159	838.08
	Mistry	day	0.18	306.00	130	55.08
	Beldar	day	3.24	306.00	114	991.44
	Sundries, brushes, bitumen torch etc.	L.S.	23.4	2.12	9999	49.61
	TOTAL					9935.03
	Add Water Charges @ 1%					99.35
	TOTAL					10034.38 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					1409.83
	Total					11444.21 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					1716.63
	Cost for 30 sqm					13160.84
	Cost of 1 sqm					438.69
	Add labour cess @ 1%					4.39
	Rate including labour cess					443.08

Say Rs.443.10 per sqm

- 22.20** Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3 mm thick water proofing membrane, black finished reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 litre/ sqm by the same membrane manufacture of density at 25°C, 0.87-0.89 kg/ litre 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 : Joint strength in longitudinal and transverse direction at 23°C as 650/450N/5 cm. 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.

22.20.1 3 mm thick.

Details of cost for 30 sqm.

MATERIAL:

A.P.P. modified 3mm thick = 30 sqm

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Add 10% for wastage = 3 sqm.					
	Total = 33 sqm					
	A.P.P. modified 3 mm thick membrane reinforced with polyester matt	sqm	33.00	210.00	(8205)	6930.00
	Bitumen primer for bitumen membrane	litre	12.00	85.00	(8206)	1020.00
	Carriage of tar / bitumen	tonne	0.01	106.64	(2211)	1.28
	Carriage of bitumen membrane	L.S.	7.80	2.12	(9999)	16.54
	Fuel					
	Commercial LPG in cylinder	kg	7.00	84.00	(1241)	588.00
	Preparing roof surface, cutting grooves	L.S.	49.53	2.12	9999	105.00
	LABOUR:					
	Skilled torch operator for laying tack	day	2.16	388.00	159	838.08
	Mistry	day	0.18	306.00	130	55.08
	Beldar	day	3.24	306.00	114	991.44
	Sundries, brushes, bitumen torch etc.	L.S	23.40	2.12	9999	49.61
	TOTAL					10595.03
	Add Water Charges @ 1%					105.95
	TOTAL					10700.98 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					1503.49
	Total					12204.46 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					1830.67
	Cost for 30 sqm					14035.13
	Cost of 1 sqm					467.84
	Add labour cess @ 1%					4.68
	Rate including labour cess					472.52

Say Rs.472.50 per sqm

22.21 Extra for covering top of membrane with Geotextile, 120 gsm non woven, 100% polyester of thickness 1 to 1.25 mm bonded to the membrane with intermittent touch by heating the membrane by Butane Torch as per manufactures recommendation.

Details of cost for 30 sqm.

MATERIAL:

Geotextile 120 gsm membrane = 30 sqm

Add 5% for wastage = 1.5 sqm

Total = 31.50 sqm

Geotextile 120 grams per sqm membrane	sqm	31.5	45.00	(8207)	1417.50
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Carriage of Geotextile	L.S.	7.8	2.12	(9999)	16.54
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LABOUR:

Skilled torch operator for laying tack	day	0.43	388.00	(0159)	166.84
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or fitter $2.16 / 5 = 0.43$

Mistry	day	0.04	306.00	(0130)	12.24
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 $0.18 / 5 = 0.04$

Beldar	day	0.65	306.00	(0114)	198.90
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 $3.24 - 5 / 0.65$

Sundries, torch, LPG etc.	L.S.	46.8	2.12	(9999)	99.22
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TOTAL

1911.23

Add Water Charges @ 1%

19.11

TOTAL

1930.34 (X)

Add GST 12% on "X" (multiplying factor 0.1405)

271.21

Total

2201.56 (Y)

Add for contractor's profit and over-heads @ 15% on "Y"

330.23

Cost for 30 sqm

2531.79

Cost of 1 sqm

84.39













Add labour cess @ 1%

0.84

Rate including labour cess

85.23

Say Rs.85.20 per sqm


















724

BCD/SOR_11th Edition_2022

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
22.22	Providing and mixing integral crystalline admixture for waterproofing treatment to RCC structures like basement raft, retaining walls, reservoir, sewage & water treatment plant, tunnels / subway and bridge deck etc.. at the time of transporting of concrete into the drum of the ready-mix truck, using integral crystalline admixture @0.80% (minimum) to the weight of cement content per cubic meter of concrete) or higher as recommended by the manufacturer's specification in reinforced cement concrete at site of work. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90%, compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure. The crystalline admixture shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the Engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.					
	Details of cost for 1.00 Kg					
	MATERIAL :					
352	Integral crystalline admixture	kg	1.00	230.00	0352	230.00
	LABOUR :					
9999	For measuring, making and mixing etc..	L.S.	5.80	2.12	9999	12.30
9999	Sundries	L.S.	1.15	2.12	9999	2.44
9999	Carriage of material and tools cost etc..	L.S.	1.75	2.12	9999	3.71
	TOTAL					248.44
	Add 1 % Water charges					2.48
	TOTAL					250.93 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					35.26
	Total					286.18 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					42.93
	Cost for 1.00 Kg					329.11
	Add labour cess @ 1%					3.29
	Rate including labour cess					332.40
	Say Rs.332.40 per Kg					
22.22A	Providing and applying fibre reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 on top of concrete roof in three coats @10.76 litre/ 10 sqm. One coat of self-priming of elastomeric waterproofing liquid (dilution with water in the ratio of 3:1) and two coats of undiluted elastomeric waterproofing liquid (dry film thickness of complete application/system not less than 500 microns). The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect as per the direction of Engineer-in-Charge.					
	Details of cost for 10 Sqm					
	MATERIAL					
8511	Fibre reinforced elastomeric liquid water proofing membrane	litre	11.30	230.00	8511	2599.00
	10.76 litre + 0.538 (Add wastage 5%)					
	= 11.30 litre					
9977	Carriage of materials	L.S.	1.43	2.12	9977	3.03
	LABOUR					0.00
115	Coolie	day	0.67	318.00	115	213.06
131	Painter	day	0.67	391.00	131	261.97
9999	Wire brush brushes, rollers etc.	L.S.	6.76	2.12	9999	14.33
9999	Sundries	L.S.	8.06	2.12	9999	17.09
	TOTAL					3108.48
	Add 1 % Water charges					31.08
	TOTAL					3139.56 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					441.11
	Total					3580.67 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					537.10
	Cost of 10 sqm					4117.77

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Cost of 1 sqm					411.78
	Add labour cess @ 1%					4.12
	Rate including labour cess					415.90
	Say Rs.415.90 per sqm					
22.23	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels / subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer- in-charge. The product performance shall carry guarantee for 10 years against any leakage.					
22.23.1	For vertical surface two coats @0.70 kg per sqm					
	Details of cost for 1.00 sqm MATERIAL :					
	Integral crystalline slurry					
351	(2 x .70kg / sq.mtr. = 1.40kg)	kg	1.40	195.00	0351	273.00
	LABOUR					0.00
9999	For application of waterproofing material	L.S.	11.55	2.12	9999	24.49
9999	Sundries	L.S.	1.15	2.12	9999	2.44
9999	Carriage of material and tools cost etc..	L.S.	1.75	2.12	9999	3.71
	TOTAL					303.63
	Add 1% Water Charges					3.04
	TOTAL					306.67 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					43.09
	Total					349.76 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					52.46
	Cost for 1.00 sqm					402.22
	Add labour cess @ 1%					4.02
	Rate including labour cess					406.24
	Say Rs.406.20 per sqm					
22.23.2	For horizontal surface one coat @1.10 kg per sqm.					
	Details of cost for 1.00 sqm					
	MATERIAL :					
351	Integral crystalline slurry	kilogram	1.10	195.00	0351	214.50
	(1 x 1.10kg / sq.mtr. = 1.10kg)					
	LABOUR :					
9999	For application of waterproofing material	L.S.	5.75	2.12	9999	12.19
9999	Sundries	L.S.	1.15	2.12	9999	2.44
9999	Carriage of material and tools cost etc..	L.S.	1.75	2.12	9999	3.71
	TOTAL					232.84
	Add 1% Water Charges					2.33
	TOTAL					235.17 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					33.04
	Total					268.21 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					40.23
	Cost for 1.00 sqm					308.44
	Add labour cess @ 1%					3.08
	Rate including labour cess					311.52
	Say Rs.311.50 per sqm					




726


Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
22.23A	Providing & Applying polymer modified, flexible cementitious negative side waterproofing coating with elastic waterproofing polymers on interior wall plaster surface in three coats @14.35 kg /10 sqm. one coat of self priming of cementitious waterproofing polymer(dilution with water in the ratio of 1:1) and two coats of cementitious waterproofing polymer (dilution with water in the ratio of 3:1) after scrapping and properly cleaning the surface to remove pre-existing paint film & loose particles till plaster is visible, complete in all respect as per the direction of Engineer-in-Charge.					
	Details of cost for 10 Sqm					
	MATERIAL					
8512	Cementitious water proofing coating with elastic polymers	kg	15.07	225.00	8512	3390.75
	14.35 kg + 0.72 (Add wastage 5%)					0.00
	= 15.07 litre					0.00
9977	Carriage of materials	L.S.	1.56	2.12	9977	3.31
	LABOUR					0.00
115	Coolie	day	0.23	318.00	115	73.14
131	Painter	day	0.46	391.00	131	179.86
9999	Wire brush brushes, rollers etc.	L.S.	7.15	2.12	9999	15.16
9999	Sundries	L.S.	8.06	2.12	9999	17.09
	TOTAL					3679.30
	Add 1 % Water charges					36.79
	TOTAL					3716.10 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					522.11
	Total					4238.21 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					635.73
	Cost of 10 sqm					4873.94
	Cost of 1 sqm					487.39
	Add labour cess @ 1%					4.87
	Rate including labour cess					492.26
	Say Rs.492.30 per sqm					
22.24	Providing and applying integral crystalline (dry shake) of hydrophilic in nature for waterproofing treatment to the RCC structures like basement raft, foundation slab, sewage & water treatment plant slab, warehouses floor, parking structures and water tank base slab etc. sprinkled @0.60kg per sqm or higher as recommended by the manufacturer's specification over the lean concrete of above cited structures. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 85%, compared control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline dry- shake shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the Engineer-in- charge. The product performance shall carry guarantee for 10 years against any leakage					
	Details of cost for 1.00 sqm					
	MATERIAL :					
354	Integral crystalline dry shake	kilogram	0.60	280.00	354	168.00
	LABOUR					
9999	For measuring and sprinkling of waterproofing material	L.S.	11.55	2.12	9999	24.49
9999	Sundries	L.S.	1.15	2.12	9999	2.44
9999	Carriage of material and tools cost etc..	L.S.	1.75	2.12	9999	3.71
	TOTAL					198.63
	Add 1% Water Charges					1.99
	TOTAL					200.62 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					28.19
	Total					228.81 (Y)

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	Add for contractor's profit and over-heads @ 15% on "Y"					34.32
	Cost for 1.00 sqm					263.13
	Add labour cess @ 1%					2.63
	Rate including labour cess					265.76
	Say Rs.265.80 per sqm					
22.24 A	Providing & Applying high quality acrylic modified resin based texture of Dholpur/ Red sand stone Pattern with anti algae and UV resistance properties to be applied as intermediate finish in desired pattern @ 43.04 kgs/10 sqm to form film of 1- 1.5 mm thickness after scrapping and properly cleaning the surface to remove loose particles from the plaster surface, followed by top coating with Premium Acrylic Smooth exterior paint with Silicone additives of required shade by two or more coats @ 1.43 litres/10 sqm, complete as the direction of Engineer -in-Charge.					
	Details of cost for 10 Sqm MATERIAL					
	Acrylic modified resin based texture					
8513	43.04 kg + 2.15 (Add wastage 5%) = 45.19 kg	kg	45.19	42.00	8513	1897.98
	Quantity taken for cost using once = 10 sqm					
	Top coat with premium acrylic exterior paint (two or more coats)					
	Rate as per Item No.14.67.1 of					
14.67.1	SH:REPAIRS TO BUILDINGS	sqm	10.00	77.86	14.67.1	778.59 (A)
9977	Carriage of materials	L.S.	3.90	2.12	9977	8.27
	LABOUR					
115	Coolie	day	0.56	318.00	115	178.08
123	Mason (brick layer) 1st class	day	0.56	413.00	123	231.28
9999	Sundries and scaffolding	L.S.	40.00	2.12	9999	84.80
	TOTAL					3178.99
	Add 1 % Water charges on all except (A)					24.00
	TOTAL					3203.00 (X)
	Add GST 12% on "X" except A (multiplying factor 0.1405)					340.63
	Total					3543.63 (Y)
	Add 15 % Contractor's profit and overheads on all except (A)					414.76
	TOTAL					3958.39
	Cost of 10 sqm					3958.39
	Cost of 1 sqm					395.84
	Add labour cess @ 1%					3.96
	Rate including labour cess					399.80
	Say Rs.399.80 per sqm					
22.25	Providing and applying crystalline mortar by mixing in the ratio of 4.5 : 1 (4.5 parts crystalline mortar : 1 part water) for the treatment of faulty construction joints, cracks, tie rod holes and spalled & honeycombed surface of RCC underground structures like basement, water tanks, bridge deck etc. to ensure water tightness. The crystalline mortar shall conform to the EN 1504-3 having compressive strength Class R4 (?45 MPa) and adhesive bond strength Class R3 (?1.5 MPa). The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.					
22.25.1	For sealing cracks and faulty construction joints, routed out/making U-shape groove size 25x25mm and then primed the area with integral crystalline slurry @0.05kg/running meter and while the surface is tacky filled the groove upto surface with crystalline mortar @1.50kg/running meter. Once crystalline mortar is touch dry then finally applied two coats of integral crystalline slurry @0.05kg/running meter per coat.					
	Details of cost for 1.00 meter					
	MATERIAL :					
353	Crystalline Mortar @1.50 kg per meter	kilogram	1.50	190.00	353	285.00
	Say Rs.285.00 per meter					

BCD/SOR_11th Edition_2022

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
351	Integral crystalline slurry for priming and finishing (3 x 0.05kg / meter) = 0.15kg LABOUR	kilogram	0.15	195.00	351	29.25
9999	For making crystalline mortar and repair work etc..	L.S.	14.45	1.73	9999	25.00
9999	Sundries	L.S.	1.15	1.73	9999	1.99
9999	Carriage of material and tools cost etc..	L.S.	1.75	1.73	9999	3.03
	TOTAL					344.27
	Add 1% Water Charges					3.44
	TOTAL					347.71 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					48.85
	Total					396.56 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					59.48
	Cost for 1.00 metre					456.05
	Add labour cess @ 1%					4.56
	Rate including labour cess					460.61
Say Rs.460.60 per metre						
22.25.2	For patching of tie rod holes, prepared tie rod hole surface and then primed the area with integral crystalline slurry @0.070kg/sqm and while the surface is tacky repair and then filled the tie rod holes with crystalline mortar@0.040kg per hole. The crystalline mortar should be tightly rodded into tie rod holes or packed tightly (For 25x25x25 mm tie rod hole, use 0.040kg to fill the hole)					
	Details of cost for 1 no. hole					
	MATERIAL :					
353	Crystalline mortar@0.040 kg per hole	kilogram	0.04	190.00	353	7.60
	LABOUR					
9999	For making crystalline mortar and repair work etc..	L.S.	2.90	1.73	9999	5.02
9999	Sundries	L.S.	0.30	1.73	9999	0.52
9999	Carriage of material and tools cost etc..	L.S.	0.25	1.73	9999	0.43
	TOTAL					13.57
	Add 1% Water Charges					0.14
	TOTAL					13.70 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					1.93
	Total					15.63 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					2.34
	Cost for each hole					17.97
	Add labour cess @ 1%					0.18
	Rate including labour cess					18.15
Say Rs.18.20 Each						
22.26	Providing and applying of swellable type water stop tape, 19mm x 25mm thick in linear meter (expansive nature) for construction joints treatment of RCC structure such as raft slab, retaining walls, water storage tank and at the junctions of raft slab with the retaining walls etc.. After cleaning the surface, one coat of required primer for swellable water stop tape shall be applied throughout the length of the joint @3.78 litre per 240 running meter. Over the primed surface swellable type water stop tape shall be placed. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.					
	Details of cost for 1.00 meter					
	MATERIAL :					
355	Swellable type water stop tape (Crystalline sealing compound)	metre	1.00	325.00	355	325.00
356	Swellable type water stop primer (@3.78 litre per 240 running meter)	Litre	0.02	1300.00	356	20.80

Item No.	Description	Unit	Qty	Rate	Rate Code.	Cost Rs.
	LABOUR					
9999	For application of primer and swellable water stop	L.S.	8.65	1.73	9999	14.96
9999	Sundries	L.S.	1.15	1.73	9999	1.99
9999	Carriage of material and tools cost etc..	L.S.	1.75	1.73	9999	3.03
	TOTAL					365.78
	Add 1% Water Charges					3.66
	TOTAL					369.44 (X)
	Add GST 12% on "X" (multiplying factor 0.1405)					51.91
	Total					421.35 (Y)
	Add for contractor's profit and over-heads @ 15% on "Y"					63.20
	Cost for 1.00 metre					484.55
	Add labour cess @ 1%					4.85
	Rate including labour cess					489.40
	Say Rs.489.40 per metre					











