

## 16 ROOFING

SL NO	DESCRIPTION	UNIT	RATE (Rs p)
<b>16.01</b>	Providing corrugated G.S. sheet roofing fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (upto a pitch of 60 degrees) excluding the cost of purlins, rafters and trusses.		
	<b>(Basis : 12.1 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) [- 1.60mm thick with zinc coating not less than 350gm/m <sup>2</sup>	sqm	846.20
	(b) [- 1.25mm thick with zinc coating not less than 350gm/m <sup>2</sup>	sqm	696.10
	(c) 1.00mm thick with zinc coating not less than 275gm/m <sup>2</sup>	sqm	590.00
	(d) - 0.80mm thick with zinc coating not less than 275gm/m <sup>2</sup>	sqm	505.20
	(e) - 0.63mm thick with zinc coating not less than 275gm/m <sup>2</sup>	sqm	432.60
<b>16.02</b>	Extra for providing and fixing corrugated G.S. sheets vertically or to a pitch exceeding 60 degrees .	sqm	7.90
<b>16.03</b>	Extra for providing and fixing curved C.G.S. sheets in roofing <b>(Basis 16.03 MPWD Analysis of Rates, 2007 )</b>		
	(a) - 0.80 mm thick	sqm	10.60
	(b) - 0.63 mm thick	sqm	8.60
<b>16.04</b>	Extra for straight cutting in C.G.S. sheet roofing for making opening of area exceeding 40 sq. decimeter for chimney stacks, sky light etc. :		
	<b>(Basis : 12.2 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) [- 1.60 mm thick	m	64.10
	(b) [] - 1.25 mm thick	m	50.80
	(c) [- 1.00 mm thick	m	40.10
	(d) ] - 0.80 mm thick	m	32.10
	(e) [] - 0.63 mm thick	m	26.70

SL NO	DESCRIPTION	UNIT	RATE (Rs p)
<b>16.05</b>	Extra for circular cutting in C.G.S. sheet roofing for making opening of area exceeding 40 square decimeter : <b>(Basis : 12.3 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) - 1.60 mm thick	m	347.50
	(b) 1.25mm thick	m	271.70
	(c) 1.00mm thick	m	217.50
	(d) 0.80 mm thick	m	173.70
	(e) 0.63mm thick	m	173.70
<b>16.06</b>	Providing ridges or hips of width 60 cm over all width plain G.S. sheet fixed with polymer coated J. or L hooks, bolts and nuts 8 mm dia. G.I. limpet and bitumen washers complete. <b>(Basis : 12.4 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) [- 0.80mm thick with zinc coating not less than 275gm/m <sup>2</sup>	m	407.80
	(b) - 0.63mm thick with zinc coating not less than 275gm/m <sup>2</sup>	m	368.50
<b>16.07</b>	Providing of 90cm wide overall in plain G.S. sheet fixed with polymer coated J, or L hooks, bolts and nuts 8mm dia.. G.I. limpet and bitumen washers complete : <b>(Basis : 12.5 C PWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) 1.60mm thick with zinc coating not less than 350gm/m <sup>2</sup>	m	699.90
<b>16.08</b>	Providing flashing of 40 cm over all width in plain, G.S. sheet fixed with polymer coated J, or L hooks, bolts and nuts, G.I. limpet and bitumen washer complete, bent to shape and fixed in wall with cement mortar 1:3 (1cement : 3 coarse sand). <b>(Basis : 126 C PWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) 1.25mm thick with zinc coating not less than 350gm/m <sup>2</sup>	m	356.50
	(b) 1.00mm thick with zinc coating not less than 275gm/m <sup>2</sup>	m	327.30

SL NO	DESCRIPTION	UNIT	RATE (Rs p)
<b>16.09</b>	Providing and fixing 15 cm wide 45 cm over all semi circular plain G.S. sheet gutter with iron brackets 40x3mm size, bolts, nuts and washers etc. including making necessary connections with rain water pipes complete. <b>(Basis : 12.7 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) - 0.80mm thick with zinc coating not less than 275gm/m <sup>2</sup>	m	437.40
	(b) 0.63mm thick with zinc coating not less than 275gm/m <sup>2</sup>	m	404.80
<b>16.10</b>	Grading roof for water proofing treatment with - <b>(Basis : CPWD Analysis of Rates, 1997 Vol-IV)</b>		
	(a) Cement concrete 1 : 2 : 4 with 20mm aggregate.	cum	6781.20
	(b) Cement mortar 1 : 3 ( 1cement : 3fine sand).	cum	9675.00
<b>16.11</b>	Providing and laying chequered precast concrete tiles 22mm thick on roofs jointed with cement mortar 1 : 3 (1cement : 3fine sand) mixed with 2% integral water proofing compound by weight of cement laid over a bed of 12mm layer of cement mortar 1 : 3 (1cement : 3fine sand) and finished neat.	sqm	865.80
<b>16.12</b>	Providing flat iron bracket 40mm x 3mm with bolts and nuts for holding G.I. sheet and A.C gutters.	No	110.50
<b>16.13</b>	Providing and fixing 15mm wide and 45cm overall semi-circular gutter with 0.63mm thick plain G.I. sheet with iron brackets 40mm x 3mm size, bolts, nuts and washers etc. including making necessary connections with rain water pipes complete.	m	415.30
<b>16.14</b>	Providing and fixing wind ties section 40mm x 6mm flat iron.	m	180.00
<b>16.15</b>	Providing and fixing 0.63mm I.S. thick galvanised plain sheet ventilating louver with 15 cm slats in first class local wood frame of size 10cm x 8cm and 13mm mesh galvanised wire netting inside.	sqm	1196.30
<b>16.16</b>	Lime concrete terracing on roofs, average thickness 10cm laid to fall with 25mm nominal size brick aggregate and 50% lime mortar 1:2 (1lime putty : 2fine sand) rammed and finished with gur and belgiri treatment complete including rounding of junctions with parapet wall complete.	sqm	628.00

SL NO	DESCRIPTION	UNIT	RATE (Rs p)
<b>16.17</b>	Providing asbestos cement 6 mm thick corrugated sheets roofing and fixing with polymer coated J, or L hooks, bolts and nuts 8mm dia.. G.I. plain and bitumen washers complete excluding the cost of purlins, rafters and trusses: corrugated sheets.		
	<i>(Basis : 12.8CPWD Analysis of Rates, 2012 Vol-I)</i>		
	(a) ] - Upto 60 degrees pitch	sqm	289.70
	(b) - Above 60 degrees pitch	sqm	297.80
<b>16.18</b>	Extra for straight cutting in A.C. corrugated, semi-corrugated 6 mm thick sheet roofing for making openings of area exceeding 40 square decimeter for chimney stacks, skylights etc.	m	34.90
<b>16.19</b>	Extra for circular cutting in A.C. corrugated/semi-corrugated 6 mm thick sheet roofing for making openings of area exceeding 40 square decimeter.	m	96.30
<b>16.20</b>	Extra for providing and fixing wind ties of 40x 6mm flat iron section.	m	182.10
<b>16.21</b>	Providing and fixing ridges and hips in asbestos fibre cement high impact polypropylene reinforced roofing with suitable fixing accessories or self drilling fastener and EPDM washer etc complete:		
	<i>(Basis : 12.12 CPWD Analysis of Rates, 2012 Vol-I)</i>		
	(a) One piece plain angular ridges	m	196.50
	(b) - Serrated or plain wing adjustable ridges	m	248.30
	(c) Close fitting adjustable ridges	m	313.50
	(d) North light adjustable ridges	m	249.70
	(e) Unserrated adjustable hips	m	245.20
<b>16.22</b>	Providing and fixing asbestos cement roofing accessories with polymer coated J or L hooks, bolts and nuts and or G.I. seam bolts and nuts, G.I. plain and bitumen washers complete :		
	<i>(Basis : 12.13CPWD Analysis of Rates, 2012 Vol-I)</i>		
	(a) Apron flashing pieces	m	158.50
	(b) Eave's filler pieces .	m	113.80
	(c) North light and ventilator curves .	m	256.70
	(d) Barge boards	m	336.30

SL NO	DESCRIPTION	UNIT	RATE (Rs p)
(e)	Ridge finials	pair	191.70
(f)	Curved barge boards for north light curves	No	247.70
(g)	Roof lights	No	228.20
(h)	Expansion joints for ridges	No	322.80
(i)	Expansion joints for north light curves	No	348.60
(j)	S type louvers	m	215.20
<b>16.23</b>	Providing flat iron brackets 50x3mm size with necessary bolts, nuts and washers etc. for fixing asbestos cement/G.S. sheets gutters with purlins.	m	67.60
<b>16.24</b>	Painting top of roofs with bitumen of approved quality at 17kg per 10 sqm impregnated with a coat of coarse sand at 60 cudm per 10sqm including cleaning the slab surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil complete :		
	<b>(Basis : 12.15CPWD Analysis of Rates, 2012 Vol-I)</b>		
(a)	With residual type petroleum bitumen of penetration 80/100	m	142.20
<b>16.25</b>	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10mm and down gauge) including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :		
	<b>(Basis : 12.21CPWD Analysis of Rates, 2012 Vol-I)</b>		
(a)	] - In 75x75mm deep chase	sqm	155.80
<b>16.26</b>	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1mx1mx400micron, finished with 12mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement rounding the edge sand making and finishing the outlet complete.	No	298.30
<b>16.27</b>	Providing sand stone slab for roofing and laying them in cement mortar 1 : 4 (1 cement : 4 coarse sand) over wooden karries or R.C.C. battens (Karries and battens to be paid separately) including pointing the ceiling joints with cement mortar 1:3 (1 cement : 3 fine sand ) complete :		
	<b>(Basis : 12.23CPWD Analysis of Rates, 2012 Vol-I)</b>		
	<b>(A) - Red sand stone slab</b>		
(a)	- 40 mm thick	sqm	623.40
(b)	- 45 mm thick	sqm	718.10
(c)	- 50 mm thick	sqm	750.80

SL NO	DESCRIPTION	UNIT	RATE (Rs p)
	<b>(B) - White sand stone slab :</b>		
	(a) - 40 mm thick	sqm	437.80
	(b) - 45 mm thick	sqm	470.10
	(c) - 50 mm thick	sqm	493.50
<b>16.28</b>	Providing and fixing 100 mm diameter and 60 cm long rain water spout in cement mortar 1:4 (1 cement : 4 fine sand) .		
	<b>(Basis : 12.37 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) - Stone ware spout	No	91.40
<b>16.29</b>	Providing and fixing M.S. holder bat clamps of approved design to C.I. or S.C.I. rain water pipes embedded in and including cement concrete blocks 10x10x10cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and cost of cutting holes and making good the walls etc. :		
	<b>(Basis : 12.38 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) - 100 mm diameter	No	135.00
	(b) - 150 mm diameter	No	153.00
<b>16.32</b>	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.(i) Single socketed pipes :		
	<b>(Basis : 12.41 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	(a) - 75 mm diameter	m	249.30
	(b) - 110 mm diameter	m	410.10
<b>16.33</b>	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.		
	<b>(Basis : 12.42 CPWD Analysis of Rates, 2012 Vol-I)</b>		
	<b>(A) - Coupler</b>		
	(a) - 75 mm	No	185.50
	(b) - 110 mm	No	243.60
	<b>(B) ] - Single pushfit Coupler :</b>		
	(a) - 75 mm	No	204.90
	(b) - 110 mm	No	260.00

SL NO	DESCRIPTION	UNIT	RATE (Rs p)
<b>(C) - Single tee with door</b>			
(a)	] - 75x75x75 mm	No	258.30
(b)	] 110x110x110 mm )	No	379.00
<b>(D) - Single tee without door</b>			
(a)	] - 75x75x75 mm	No	243.40
(b)	] 110x110x110 mm	No	349.20
<b>(E) - Bend 87.5°</b>			
(a)	] - 75 mm bend	No	197.50
(b)	] 110mm bend	No	260.00
<b>(F) - Shoe (Plain)</b>			
(a)	] - 75 mm Shoe	No	264.70
(b)	] - 110 mm Shoe	No	401.90
<b>16.34</b>	Providing and fixing unplasticised -PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50mm hard wood plugs, screwed with M.S. screws of required length including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.		
<b>(Basis : 12.43 CPWD Analysis of Rates, 2012 Vol-I)</b>			
(a)	] 75 mm	No	194.10
(b)	] - 110 mm	No	208.20
<b>PRE-COATED ROOF</b>			
<b>16.37</b>	Providing Trapezoidal Polyester Coated Galvanised Steel Sheets Roofing of any colour of 1.06m width at all levels including fitting and fixing ridging with self drilling , self tapping screws, EPDM washers etc. complete excluding the cost of purlin, rafter and trusses.		
<b>(Basis : 16.37 MPWD Analysis of Rates, 2007</b>			
(i)	For 0.50mm thick :	sqm	1015.70
(ii)	For 0.55mm thick :	sqm	1152.90
(iii)	For 0.60 mm thick :	sqm	1255.80
(iv)	For 0.65 mm thick :	sqm	1360.10
(v)	For 0.80 mm thick :	sqm	1638.70

SL NO	DESCRIPTION	UNIT	RATE (Rs p)
	<b>RIDGES, GUTTERS &amp; VALLEYS</b>		
	<b>Polyester coated galvanised Steel sheet of 500 &amp; 600mm WIDTH</b>		
<b>16.38</b>	Providing and fixing of Polyester Coated Galvanised Steel Sheets of any colour ridges, gutters or valleys 50cm overall width 0.50mm thick with 150 mm overlapping fixed with Self Drilling & Tapping Screws with EPDM washer but excluding the cost of base frame.		
	<b>(Basis : 16.38 MPWD Analysis of Rates, 2007</b>		
	<b>(i) For 0.50 mm thick :</b>	m	486.40
	<b>(ii) For 0.55 mm thick :</b>	m	540.70
	<b>(iii) For 0.60mm thick :</b>	m	580.70
	<b>(iv) For 0.65mm thick :</b>	m	633.50
	<b>(v) For 0.80mm thick :</b>	m	766.40
	<b>RIDGES, GUTTERS &amp; VALLEYS</b>		
<b>16.39</b>	Providing and fixing of Pre-coated Galvanised Steel Sheet of any colour ridges, gutters or valleys 50cm overall width, 0.50mm thick with 150 mm overlapping fixed with Self Drilling & Tapping Screws with EPDM washer but excluding the cost of base frame. <b>BASIS</b>	m	909.30
<b>16.40</b>	Providing and fixing of Bare Galvalume Steel Sheet (Alloy of 55% Aluminium : 43.4% Zinc & 1.6% Silicon) ridges, gutters or valleys 50cm over all width 0.50mm thick with 150 mm overlapping fixed with Self Drilling & Tapping Screws with EPDM washer but excluding the cost of base frame.	m	909.30
<b>16.41</b>	Providing and fixing of Pre-coated Galvalume Steel Sheet (Alloy of 55% Aluminium : 43.4% Zinc & 1.6% Silicon) ridges, gutters or valleys 50cm over all width 0.50mm thick with 150 mm overlapping fixed with Self Drilling & Tapping Screws with EPDM washer but excluding the cost of base frame.	m	1016.40
<b>16.42</b>	Providing Profiled Pre-Coated Galvanised Steel Sheets Roofing of any colour of 1.06m width and 0.50mm thick at all levels including fitting and fixing ridging with self drilling , self tapping screws, EPDM washers etc. complete excluding the cost of purlin, rafter and	m	967.20



SL NO	DESCRIPTION	UNIT	RATE (Rs p)
	trusses.		
16.43	Providing Profiled Bare Galvalume Sheets Roofing (Alloy of 55% Aluminium : 43.4% Zinc & 1.6% Silicon) of 1.06m width and 0.50mm thick at all levels including fitting and fixing ridging with self drilling , self tapping screws, EPDM washers etc. complete excluding the cost of purlin, rafter and trusses.	m	967.20
16.44	Providing Profiled Pre-Coated Galvalume Sheets Roofing (Alloy of 55% Aluminium : 43.4% Zinc & 1.6% Silicon) of any colour of 1.06m width and 0.50mm thick at all levels including fitting and fixing ridging with self drilling , self tapping screws, EPDM washers etc. complete excluding the cost of purlin, rafter and trusses.	m	1070.10
16.45	Providing and fixing 1.05mx3.05m Translucent Polycarbonate of 2mm thick sheet roofing with galvanised roof screws with bitumen and G.I limpet washers filled with white lead complete, excluding cost of purlin, rafter and trusses.	m	4096.10
16.46	Providing and fixing 0.90mx3.65m Transparent Fibre 2mm thick sheet roofing with galvanised roof screws with bitumen and G.I limpet washers filled with white lead complete, excluding cost of purlin, rafter and trusses.	m	379.10
	<b>Pressed Clay</b>		
16.47	Providing and laying machine made Pressed Clay Roof Tiles on sloping roof and chajjas over 20mm thick base of cement mortar 1:3 and jointed with cement slurry and joints flush with mortar 1:3 complete.	m	2026.70