



**GOVERNMENT OF RAJASTHAN**

**PUBLIC WORKS DEPARTMENT**

**RAJASTHAN, JAIPUR**

**BASIC SCHEDULE OF RATES**

**(FOR ELECTRICAL WORKS)**

**2022**

**( Effective From 01-06-2022)**



**OFFICE OF THE CHIEF ENGINEER(Elect), PWD,RAJASTHAN,JAIPUR**

No.CE(Elect.)/BSR/2022-23/D- 148


Dated: 30.05.2022

**OFFICE ORDER**

The Basic Schedule of Rate of PWD Electrical works has been prepared by Technical committee members and reviewed by undersigned on the basis of state-of-the-art technology updating, implementation of BEE guidelines & updated prices of products. On the recommendation of the committee and in exercise of the powers delegated to undersigned under clause 32 of schedule of powers, the PWD Electric BSR-2022 for electrical works is hereby issued for being enforced in the jurisdiction of undersigned (i.e. PWD Rajasthan) with effect from 01-06-2022 for all PWD Electrical works.


PWD Electrical BSR -2022 can be downloaded from PWD Rajasthan Website in PDF form and specifications be cross verified by soft copy also from the date of issue of this order.

Although every care has been taken yet, in a work like this, it is possible that some typographical or other errors and omissions have crept in. Suggestions for improvements with corrections in this BSR Electric-2022 will be most welcome from all, which may please be sent to the undersigned.

  
(Jagat Singh Meena)  
**Chief Engineer (Elect.)**  
**PWD Rajasthan, Jaipur** MC

**Copy Forwarded to following for information & necessary action:-**

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2. PS to the Secretary , P.W.D. GOR Jaipur
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4. The Managing Director, RSRDCC Ltd, Setu Bhawan, Jhalana doongri , Jaipur
5. The Chief Engineer, NHM Rajasthan, Swasthya Bhawan, Jaipur/ Jodhpur
6. The Chief Engineer, UDH/LSG, Rajasthan, Jaipur
7. The Housing commissioner, RHB, Jyoti Nagar , Jaipur
8. The Project Director, RUIDP, AVS Bldg. JLN Marg, Jaipur.
9. The Administrator, RSAMB, Pant Bhawan, Jaipur
10. The commissioner, Jaipur/ Jodhpur Development Authority.
11. The Additional Chief Engineer, PWD(Electrical/ Civil)...All
12. The superintending Engineer, PWD(Electrical/Civil)...All
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14. The executive Engineer, PWD (Electrical/ Civil )....All

  
**Chief Engineer (Elect.)**  
**PWD Rajasthan, Jaipur** MC

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## Chapter E - 01

### Electrical Wiring in PVC Conduit

Code No.	Description	Unit	Complete Rate
1.1	Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked MMS ( IS:9537 P - III ) virgin material PVC conduit & it's ISI marked (IS:3419-1988) accessories, round tiles, 1.2 mm thick Hot Dipped Galvanized Modular Box with earth terminal, 10A Modular switch, Modular face plate with grid plate, 3 pin ceiling rose / Holder / 3 way connector, screws, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
1.1.1	Short point (up to 3 mtr.)	P. point	359.00
1.1.2	Medium point (up to 6 mtr.)	P. point	578.00
1.1.3	Long point (up to 10 mtr.)	P. point	772.00
1.2	Wiring of twin control light point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked MMS ( IS:9537 P - III ) PVC conduit & it's ISI marked (IS:3419-1988) accessories, round tiles, 2 Nos Hot Dipped Galvanized M.S Modular box of 1.2 mm thick with earth terminal, 2 Nos 10 A two way Modular switch, 3 pin ceiling rose / holder / 3 way connector, Modular face plate with grid plate, screws, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
1.2.1	Short point (up to 3 mtr.)	P. point	772.00
1.2.2	Medium point (up to 6 mtr.)	P. point	1137.00
1.2.3	Long point (up to 10 mtr.)	P. point	1226.00

Code No.	Description	Unit	Complete Rate
1.3	Wiring of 3/5 pin 6 amp. Light plug point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked MMS ( IS:9537 P - III ) PVC conduit & it's ISI marked (IS:3419-1988) accessories, Hot Dipped Galvanized Modular box of 1.2 mm thick with earth terminal, 10 A modular switch, 3/5 pin 6 A modular socket, Modular face plate with grid plate, screws, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
1.3.1	On board	P. point	357.00
1.3.2	Short point (up to 3 mtr.)	P. point	507.00
1.3.3	Medium point (up to 6 mtr.)	P. point	726.00
1.3.4	Long point (up to 10 mtr..)	P. point	920.00
1.4	S&F following sizes (dia.) of ISI marked virgin material MMS ( IS:9537 P - III ) PVC conduit along with ISI marked (IS:3419-1988) accessories as required in recess including cutting the wall, covering conduit and making good the same as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
1.4.1	20 mm	R. mtr.	40.00
1.4.2	25 mm	R. mtr.	56.00
1.4.3	32 mm	R. mtr.	84.00
1.4.4	40 mm	R. mtr.	115.00
1.4.5	50 mm	R. mtr.	170.00
1.5	Rewiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked MMS ( IS:9537 P - III ) virgin material PVC conduit & it's ISI marked (IS:3419-1988) accessories, round tiles, 1.2 mm thick MS box with earth terminal, 6 A switch, 3 pin ceiling rose/holder / 3 way connector , 3.0 mm thick ISI marked (IS:2036-1995) phenolic laminated sheet, Al.alloy / Cadmium plated iron/ brass screws, cup washers, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
1.5.1	Short point (up to 3 mtr.)	P. point	256.00
1.5.2	Medium point (up to 6 mtr.)	P. point	472.00
1.5.3	Long point (up to 10 mtr.)	P. point	662.00

Code No.	Description	Unit	Complete Rate
1.6	Rewiring of twin control light / fan / call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked MMS ( IS:9537 P - III ) virgin material PVC conduit & it's ISI marked (IS:3419-1988) accessories, round tiles, 2 Nos 1.2 mm thick MS box with earth terminal, 2 Nos 6 A two way switch, 3 pin ceiling rose / holder/ 3 way connector, 3.0 mm thick ISI marked (IS:2036-1995) phenolic laminated sheet, Al.alloy / Cadmium plated iron/ brass screws, cup washers, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
1.6.1	Short point (up to 3 mtr.)	P. point	471.00
1.6.2	Medium point (up to 6 mtr.)	P. point	877.00
1.6.3	Long point (up to 10 mtr..)	P. point	1231.00
1.7	Rewiring of 3/5 pin 6 amp. Light plug point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked MMS ( IS:9537 P - III ) virgin material PVC conduit & it's ISI marked (IS:3419-1988) accessories, 1.2 mm thick MS box with earth terminal of required size, 6 A switch, 3/5 pin 6 A socket, 3.0 mm thick ISI marked (IS:2036-1995) phenolic laminated sheet, Al.alloy / Cadmium plated iron/ brass screws, cup washers, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
1.7.1	On board	P. point	136.00
1.7.2	Short point (up to 3 mtr.)	P. point	283.00
1.7.3	Medium point (up to 6 mtr.)	P. point	499.00
1.7.4	Long point (up to 10 mtr..)	P. point	689.00

## Chapter E - 02

### Electrical Wiring in Steel Conduit

Code No.	Description	Unit	Complete Rate
2.1	Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked ( IS:9537 P - II ) rigid steel conduit & it's ISI marked (IS:14768 P-II 2003) accessories, round tiles, Hot Dipped Galvanized Modular Box of 1.2 mm thick with earth terminal, 10A Modular switch, 3 pin ceiling rose / holder / 3 way connector ,Modular face plate with grid plate, pvc bushes, check nuts, screws, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
2.1.1	Short point (up to 3 mtr.)	P. point	476.00
2.1.2	Medium point (up to 6 mtr.)	P. point	853.00
2.1.3	Long point (up to 10 mtr..)	P. point	1185.00
2.2	Wiring of twin control light / Fan / Call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed/surface ISI marked ( IS:9537 P - II ) rigid steel conduit & it's ISI marked (IS:14768 P-II 2003) accessories, round tiles, 2 Nos Hot Dipped Galvanized Modular box of 1.2 mm thick with earth terminal, 2 Nos 10A two way Modular switch, 3 pin ceiling rose / holder / 3 way connector ,Modular face plate with grid plate, screws, pvc bushes, check nuts, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
2.2.1	Short point (up to 3 mtr.)	P. point	918.00
2.2.2	Medium point (up to 6 mtr.)	P. point	1585.00
2.2.3	Long point (up to 10 mtr..)	P. point	2310.00



Code No.	Description	Unit	Complete Rate
2.3	Wiring of 3/5 pin 6 amp. Light plug point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked ( IS:9537 P - II ) rigid steel conduit & it's ISI marked (IS:14768 P-II 2003) accessories, Hot Dipped Galvanized Modular box of 1.2 mm thick with earth terminal, 10A modular switch, 3/5 pin 6 A modular socket, Modular face plate with grid plate, pvc bushes, check nuts, screws, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
2.3.1	On board	P. point	357.00
2.3.2	Short point (up to 3 mtr.)	P. point	623.00
2.3.3	Medium point (up to 6 mtr.)	P. point	1001.00
2.3.4	Long point (up to 10 mtr.)	P. point	1333.00
2.4	S&F following sizes (dia.) of ISI marked ( IS:9537 P - II ) rigid steel conduit with wall thickness according to IS Specified along with ISI marked (IS:14768 P-II 2003) accessories in recessed using saddles, clamps, fasteners, pvc bushes, check nuts, as required including cutting jhiris in the wall and making good the same as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
2.4.1	20 mm	R. mtr.	122.00
2.4.2	25 mm	R. mtr.	156.00
2.4.3	32 mm	R. mtr.	214.00
2.4.4	40 mm	R. mtr.	337.00
2.4.5	50 mm	R. mtr.	483.00
2.5	Rewiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked ( IS:9537 P - II ) rigid steel conduit & it's ISI marked (IS:14768 P-II 2003) marked accessories, round tiles, 1.2 mm thick MS box with earth terminal, 6 A switch, 3 pin ceiling rose/holder / 3 pin connector, 3.0 mm thick ISI marked (IS:2036-1995) phenolic laminated sheet, pvc bushes, check nuts, Al.alloy / Cadmium plated iron/ brass screws, cup washers, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
2.5.1	Short point (up to 3 mtr.)	P. point	370.00
2.5.2	Medium point (up to 6 mtr.)	P. point	738.00
2.5.3	Long point (up to 10 mtr.)	P. point	1058.00

Code No.	Description	Unit	Complete Rate
2.6	Rewiring of twin control light / Fan / Call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked ( IS:9537 P - II ) rigid steel conduit & it's ISI marked (IS:14768 P-II 2003) accessories, round tles, 2 Nos 1.2 mm thick MS box with earth terminal, 2 Nos 6 A two way switch, 3 pin ceiling rose / holder / 3 way connector, 3.0 mm thick ISI marked (IS:2036-1995) phenolic laminated sheet, pvc bushes, check nuts, Al.alloy / Cadmium plated iron/ brass screws, cup washers, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
2.6.1	Short point (up to 3 mtr.)	P. point	665.00
2.6.2	Medium point (up to 6 mtr.)	P. point	1387.00
2.6.3	Long point (up to 10 mtr..)	P. point	2014.00
2.7	Rewiring of 3/5 pin 6 amp. Light plug point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) in recessed ISI marked ( IS:9537 P - II ) rigid steel conduit & it's ISI marked (IS:14768 P-II 2003) accessories, required size 1.2 mm thick , G.I. box with earth terminal, 6 A switch, 3/5 pin 6 A socket, 3.0 mm thick ISI marked (IS:2036-1995) phenolic laminated sheet, pvc bushes, check nuts, Al.alloy / Cadmium plated iron/ brass screws, cup washers, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
2.7.1	On board	P. point	136.00
2.7.2	Short point (up to 3 mtr.)	P. point	397.00
2.7.3	Medium point (up to 6 mtr.)	P. point	765.00
2.7.4	Long point (up to 10 mtr..)	P. point	1085.00

## Chapter E - 03

### Electrical wiring in PVC trunking

Code No.	Description	Unit	Complete Rate
3.1	Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) on surface ISI marked ( IS:14927 P - II ) virgin material UPVC trunking & it's accessories, Hot Dipped Galvanized Modular box of 1.2 mm thick with earth terminal/ Surface Moulded virgin material UPVC Modular Box , 10 A Modular switch, Modular face plate with grid plate, 3 pin ceiling rose/holder /3 way Connector, screws, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
3.1.1	Short point (up to 3 mtr.)	P. point	361.00
3.1.2	Medium point (up to 6 mtr.)	P. point	584.00
3.1.3	Long point (up to 10 mtr.)	P. point	814.00
3.2	Wiring of twin control light point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make on surface ISI marked ( IS:14927 P - II ) virgin material UPVC trunking & it's accessories, Hot Dipped Galvanized Modular box of 1.2 mm thick with earth terminal/ Surface 2 No. Moulded virgin material UPVC Modular Box , 2 Nos 10 A two way Modular switch, 3 pin ceiling rose / holder/3 way Connector , Modular face plate with grid plate, screws, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
3.2.1	Short point (up to 3 mtr.)	P. point	730.00
3.2.2	Medium point (up to 6 mtr.)	P. point	1148.00
3.2.3	Long point (up to 10 mtr..)	P. point	1516.00

Code No.	Description	Unit	Complete Rate
3.3	Wiring of 3/5 pin 6 amp. Light plug point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) on surface ISI marked ( IS:14927 P - II ) virgin material UPVC Trunking & it's accessories, Hot Dipped Galvanized Modular box of 1.2 mm thick with earth terminal/ Surface Moulded virgin material UPVC Modular Box, modular 10A switch, 3/5 pin 6 A modular socket, Modular face plate with grid plate, screws, making connections, testing etc. as required. For specification of copper Conductor, Phenolic Laminated sheet's & Electrical/ Wiring accessories refer Chapter E - 04, E - 05 & E - 07 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
3.3.1	On board	P. point	389.00
3.3.2	Short point (up to 3 mtr.)	P. point	509.00
3.3.3	Medium point (up to 6 mtr.)	P. point	732.00
3.3.4	Long point (up to 10 mtr..)	P. point	929.00
3.4	S&F following sizes of ISI marked ( IS:14927 P - II ) virgin material UPVC trunking along with accessories like coupler, inner, outer, elbow, square box, tee, end cap etc. on surface with screws, expansion fasteners as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
3.4.1	20 mm x 12 mm	R. mtr.	41.00
3.4.2	25 mm x 12 mm	R. mtr.	50.00
3.4.3	32 mm x 12 mm	R. mtr.	64.00
3.4.4	25 mm x 16 mm	R. mtr.	61.00
3.4.5	38 mm x 16 mm	R. mtr.	88.00
3.4.6	38 mm x 25 mm	R. mtr.	98.00
3.4.7	38 mm x 38 mm	R. mtr.	126.00
3.4.8	50 mm x 16 mm	R. mtr.	139.00
3.4.9	50 mm x 50 mm	R. mtr.	224.00
3.4.10	75 mm x 50 mm	R. mtr.	525.00
3.4.11	75 mm x 75 mm	R. mtr.	674.00
3.4.12	100 mm x 50 mm	R. mtr.	844.00
3.4.13	150 mm x 50 mm	R. mtr.	1274.00

## Chapter E - 04

### Drawing of Wires and Submains

Code No.	Description	Unit	Complete Rate
4.1	Supplying and drawing FR PVC insulated & unsheathed flexible copper conductor as per PWD specification for electrical Works with ISI marked (IS:694) and as per IS 8130 : 2013 of 1.1 kV grade . Wire should be made from 99.90 % purity copper, class 5 stranding in acc. to IS:8130/IEC 60228 for lower watt loss , oxygen free for less chances of oxidization, insulation PVC type A/C/D , flame retardant as per IS 10810-53, better amperage rating as per IS:3961 part 5, in existing surface or recessed PVC/ MS conduit/casing capping making connections with Copper Lugs of suitable size, Ferrules,testing etc. as required. OEM Must have its own in house NABL lab setup for all testing facilities for wires. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.1.1	1 x 1.5 sq.mm	Mtr.	22.00
4.1.2	2 x 1.5 sq.mm	Mtr.	43.00
4.1.3	3x 1.5 sq.mm	Mtr.	63.00
4.1.4	4 x 1.5 sq.mm	Mtr.	83.00
4.1.5	1 x 2.5 sq.mm	Mtr.	31.00
4.1.6	2 x 2.5 sq.mm	Mtr.	61.00
4.1.7	2 x 2.5 sq. mm. + 1x1.5sqmm	Mtr.	81.00
4.1.8	3 x 2.5 sq.mm	Mtr.	90.00
4.1.9	4 x 2.5 sq.mm	Mtr.	119.00
4.1.10	1 x 4.0 sq.mm	Mtr.	48.00
4.1.11	2 x 4.0 sq.mm	Mtr.	93.00
4.1.12	3 x 4 sq. mm.	Mtr.	137.00
4.1.13	4 x 4.0 sq.mm	Mtr.	182.00
4.1.14	2 x 4.0 sq. mm. + 1 x 2.5 sq. mm.	Mtr.	122.00
4.1.15	1 x 6.0 sq.mm	Mtr.	71.00
4.1.16	2 x 6.0 sq.mm	Mtr.	140.00
4.1.17	3 x 6.0 sq. mm.	Mtr.	208.00
4.1.18	4 x 6.0 sq.mm	Mtr.	276.00
4.1.19	2 x 6.0 sq. mm. + 1 x 2.5 sq. mm.	Mtr.	170.00
4.1.20	2 x 6.0 sq. mm. + 1 x 4.0 sq. mm.	Mtr.	185.00
4.1.21	1 x 10.0 sq.mm	Mtr.	136.00
4.1.22	2 x 10.0 sq.mm	Mtr.	267.00
4.1.23	4 x 10.0 sq.mm	Mtr.	531.00
4.1.24	1 x 16.0 sq.mm	Mtr.	221.00
4.1.25	2 x 16.0 sq.mm	Mtr.	432.00
4.1.26	4 x 16.0 sq.mm	Mtr.	857.00

Code No.	Description	Unit	Complete Rate
4.2	Supplying and drawing coaxial cable 75 ohm impedance with foam PE insulated solid bare copper inner conductor, and 1st outer conductor of bonded alum. tape and second outer conductor of alum. alloy braid in existing surface or recessed conduit/casing capping including making connections as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.2.1	RG - 6	Mtr.	30.0
4.2.2	RG -11	Mtr.	58.00
4.3	Supplying and drawing PE Insulated & PVC Sheathed unarmoured telephone cable with 0.5 mm dia. Solid Annealed electrolytic grade bare Copper Conductor as per IS: 8130/84 & confirming to TEC specification GR / WIR/06-03 March 2002 in existing surface or recessed conduit/casing capping. including ferruling on each pair for Identification etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.3.1	1 pair	Mtr.	12.0
4.3.2	2 pair	Mtr.	18.00
4.3.3	3 pair	Mtr.	26.00
4.3.4	4 pair	Mtr.	33.00
4.3.5	5 pair	Mtr.	41.00
4.3.6	10 pair	Mtr.	83.00
4.3.7	20 pair	Mtr.	159.00
4.3.8	50 pair	Mtr.	392.00
4.3.9	100 pair	Mtr.	822.00
4.3.10	200 pair	Mtr.	1554.00
4.4	Supply and Laying of PE Insulated, PVC Inner Sheathed, armoured & PVC Sheathed Telephone Cable. with 0.5 mm thick Solid Annealed Bare Copper Conductor as per IS: 8130/84 telephone cable confirming to TEC specifications GR/WIR 06/03, Mar.-2002 in existing pipe / open trench / Cable tray / on surface including making necessary connection, testing etc. as required of size. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.4.1	5 pair	Mtr.	91.0
4.4.2	10 pair	Mtr.	142.00
4.4.3	20 pair	Mtr.	231.00
4.4.4	50 pair	Mtr.	491.00
4.4.5	100 pair	Mtr.	906.00
4.4.6	200 pair	Mtr.	1729.00

Code No.	Description	Unit	Complete Rate
4.5	Supply and Laying of PE Insulated jelly filled Armoured Telephone Cable. with 0.6 mm thick Solid Annealed Bare Copper Conductor and confirming to TEC specifications confirming. to DOT GR/CUG-01/Aug.2003 in existing pipe / open trench / Cable tray / on surface including making necessary connection, testing etc. as required of size. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.5.1	5 pair	Mtr.	113.0
4.5.2	10 pair	Mtr.	169.00
4.5.3	20 pair	Mtr.	254.00
4.5.4	50 pair	Mtr.	529.00
4.5.5	100 pair	Mtr.	951.00
4.5.6	200 pair	Mtr.	1765.00
4.6	Supply & drawing Wiring for sub mains ISI marked (IS:694) 1100 Volts grade PVC insulated flat twin core sheathed solid aluminium conductor with 10 SWG G.I. Support wire duly clipped etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.6.1	4.0 sq.mm	Mtr.	60.0
4.6.2	6.0 sq.mm	Mtr.	73.00
4.6.3	10.0 sq.mm	Mtr.	98.00
4.7	P/Laying ISI marked P.V.C. insulated submersible cable confirming to (IS:694) and as per IS 8130 : 2013 of 1.1 kV grade . Wire should be made from 99.90 % purity copper, stranding in acc. to IS:8130/IEC 60228 for lower watt loss , oxygen free for less chances of oxidization, insulation PVC type A/C/D , flame retardant as per IS 10810-53, better amperage rating as per IS:3961 part 5, existing pipe / open trench / Cable tray / on surface including making connection etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.7.1	1.5 Sq.mm 3 core flat / Round	Mtr.	92.0
4.7.2	2.5 Sq.mm 3 core flat / Round	Mtr.	146.00
4.7.3	4.0 Sq.mm 3 core flat / Round	Mtr.	214.00
4.7.4	6.0 Sq.mm 3 core flat / Round	Mtr.	300.00

Code No.	Description	Unit	Complete Rate
4.7.5	10.0 Sq.mm 3 core flat / Round	Mtr.	490.00
4.7.6	16.0 Sq.mm 3 core flat / Round	Mtr.	743.00
4.8	Supply and laying following size twin parallel type Speaker cables of IS/ISO 9001 CERTIFIED COMPANY made with multi wire, bright annealed flexible bare electrolytic grade copper conductor, insulated with specially formulated transparent grade PVC compound, red strip for identification in existing conduit etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.8.1	0.75 sq.mm	Rmtr.	36
4.8.2	1.0 Sq. mm	Rmtr.	44.00
4.8.3	1.5 Sq.mm	Rmtr.	62.00
4.8.4	2.5 Sq.mm	Rmtr.	100.00
4.90	Supply and laying speaker cable of IS/ISO 9001 CERTIFIED COMPANY made following size 2 core twin twisted multi stranded electrolytic grade copper conductor, overall PVC insulated and armoured cable (Blue colour) on surface/ above false ceiling including cost of GI spacers, saddles etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.9.1	0.75 sq.mm	Rmtr.	102
4.9.2	1.0 Sq. mm	Rmtr.	111.00
4.9.3	1.5 Sq.mm	Rmtr.	131.00
4.9.4	2.5 Sq.mm	Rmtr.	182.00
4.1	Supply and laying PVC Insulated and PVC Round Sheathed Multi Core copper conductor (IS:694) and as per IS 8130 : 2013 of 1.1 kV grade . Wire should be made from 99.90 % purity copper, stranding in acc. to IS:8130/IEC 60228 for lower watt loss , oxygen free for less chances of oxidization, insulation PVC type A/C/D , flame retardant as per IS 10810-53, better amperage rating as per IS:3961 part 5, in existing pipe / open trench / Cable tray / on surface including making connection etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
4.10.1	1.5 sq.mm x 3 core	Rmtr.	95.00
4.10.2	1.5 sq.mm x 4 core	Rmtr.	118.00
4.10.3	1.5 sq.mm x 6 core	Rmtr.	185.00
4.10.4	1.5 sq.mm x 8 core	Rmtr.	241.00
4.10.5	2.5 sq.mm x 3 core	Rmtr.	148.00
4.10.6	2.5 sq.mm x 4 core	Rmtr.	195.00
4.10.7	2.5 sq.mm x 6 core	Rmtr.	294.00
4.10.8	2.5 sq.mm x 8 core	Rmtr.	381.00
4.10.9	4.0 sq.mm x 3 core	Rmtr.	222.00
4.10.10	4.0 sq.mm x 4 core	Rmtr.	281.00
4.10.11	4.0 sq.mm x 6 core	Rmtr.	455.00



## Chapter E - 05

### G.I. /M. S./ Wooden boxes ,Laminates & dismantling

Code No.	Description	Unit	Complete Rate
5.1	P & F 1.2 mm thick G. I. / M .S. Sheet boxes duly finished with two coats of red oxide and with earthing terminal of following sizes (nominal size) in recessed/surface as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
5.1.1	<b>1.2 mm thick M. S. Sheet boxes</b>		
5.1.1.1	75mm x 75mm x 60mm	Each	45.0
5.1.1.2	100mm x 100mm x 60mm	Each	58.0
5.1.1.3	150mm x 75mm x 60mm	Each	66.0
5.1.1.4	175mm x 100mm x 60mm	Each	83.0
5.1.1.5	150mm x 150mm x 60mm	Each	91.0
5.1.1.6	225mm x 100mm x 60mm	Each	99.0
5.1.1.7	200mm x 150mm x 60mm	Each	112.0
5.1.1.8	200mm x 125mm x 75mm	Each	120.0
5.1.1.9	200mm x 250mm x 75mm	Each	201.0
5.1.1.10	200mm x 250mm x 100mm	Each	223.0
5.1.1.11	250mm x 300mm x 75mm	Each	285.0
5.1.1.12	250mm x 300mm x 100mm	Each	313.0
5.1.1.13	300mm x 375mm x 75mm	Each	401.0
5.1.1.14	300mm x 375mm x 100mm	Each	429.0
5.1.1.15	250mm x 100mm x 60mm	Each	90.0
5.1.1.16	300mm x 100mm x 60mm	Each	129.0
5.1.1.17	300mm x 300mm x 75mm	Each	265.0
5.1.2	<b>1.2 mm thick G I boxes</b>		
5.1.2.1	75mm x 75mm x 60mm	Each	50.0
5.1.2.2	100mm x 100mm x 60mm	Each	63.0
5.1.2.3	150mm x 75mm x 60mm	Each	73.0
5.1.2.4	175mm x 100mm x 60mm	Each	94.0
5.1.2.5	150mm x 150mm x 60mm	Each	101.0
5.1.2.6	225mm x 100mm x 60mm	Each	112.0
5.1.2.7	200mm x 150mm x 60mm	Each	126.0
5.1.2.8	200mm x 125mm x 75mm	Each	135.0
5.1.2.9	200mm x 250mm x 75mm	Each	197.0
5.1.2.10	200mm x 250mm x 100mm	Each	258.0
5.1.2.11	250mm x 300mm x 75mm	Each	327.0
5.1.2.12	250mm x 300mm x 100mm	Each	355.0
5.1.2.13	300mm x 375mm x 75mm	Each	457.0
5.1.2.14	300mm x 375mm x 100mm	Each	486.0
5.1.2.15	250mm x 100mm x 60mm	Each	104.0
5.1.2.16	300mm x 100mm x 60mm	Each	143.0
5.1.2.17	300mm x 300mm x 75mm	Each	401.0

Code No.	Description	Unit	Complete Rate
5.2	P & F in position frame made out of M.S. angle (riveted or welded) finished with two coats of red oxide and two coats enamel paint including cutting, welding, holes etc.of following sizes as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
5.2.1	25mm x 25mm x 3mm	Mtr.	135.0
5.2.2	25mm x 25mm x 5mm	Mtr.	220.0
5.2.3	35mm x 35mm x 5mm	Mtr.	318.0
5.2.4	40mm x 40mm x 5mm	Mtr.	367.0
5.2.5	50mm x 50mm x 6mm	Mtr.	551.0
5.3	P & Fixing Powder coated CRCA sheet enclosures on existing angle iron frame by means of nuts and bolts and making holes , Din rail etc. as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
5.3.1	1.0 mm thick	Sqm.	1665.0
5.3.2	1.6 mm thick	Sqm.	2327.0
5.3.3	2.0 mm thick	Sqm.	2839.0
5.3.4	2.5 mm thick	Sqm.	3490.0
5.4	P & Fixing M.S. flat on existing angle iron frame and making required nos. of holes for fixing accessories including one coat of red oxide paint and two coats of enamel paint etc. as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
5.4.1	25 mm x 3 mm	Mtr.	73.0
5.4.2	25 mm x 5 mm	Mtr.	122.0
5.4.3	32 mm x 5 mm	Mtr.	159.0
5.4.4	40 mm x 6 mm	Mtr.	193.0
5.4.5	50 mm x 6 mm	Mtr.	293.0
5.4.6	50 mm x 10 mm	Mtr.	477.0
5.5	P & F paper phenolic resin bonded laminates confirming to IS : 2036 - 1995 for boxes/ frames including making holes for switches etc, with brass screws, washers/ zinc plated nut and bolts as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
5.5.1	3.0 mm thick	Sq.m	1002.0
5.5.2	4.8 mm thick	Sq.m	1150.0
5.5.3	6.4 mm thick	Sq.m	1291.0
5.5.4	9.0 mm thick	Sq.m	1638.0
5.5.5	12.0 mm thick	Sq.m	2161.0
5.5.6	19.0 mm thick	Sq.m	3359.0
5.5.7	25.0 mm thick	Sq.m	6107.0

Code No.	Description	Unit	Complete Rate
5.6	P & F phenolic laminated sheet 2.0 mm thick of following size . Including screws, cup washer as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
5.6.1	75 mm dia	Each	10.0
5.6.2	100 mm dia.	Each	17.0
5.7	P & F P.V.C. sheet 2.0 mm thick of following size Including screws, cup washer as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
5.7.1	75 mm dia.	Each	6.0
5.7.2	100 mm dia.	Each	7.0
5.8	P & F Aluminium sheet 1.0 m thick of following size dia. Including screws, cup washer as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
5.8.1	75 mm dia.	Each	10.0
5.8.2	100 mm dia.	Each	13.0
5.9	P & F 1.2mm thick M.S. Recessed fan box, hexagonal/ round of size 130 mm dia, depth 75mm, 12 mm dia rod fan hook with 100 mm length extended on each side . All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR	Each	128.0
5.10	P & F 1.00mm thick M.S. Recessed concealed box, round of size 150 mm dia, depth 100 mm complete as required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR	Each	94.0
5.11	Labour charges for dismantling of surface PVC/ Steel conduit including wiring in conduit, conduit fittings and depositing the same with listing of material in store.	R. Mtr.	8.0
5.12	Labour charges for dismantling of surface/ recessed switch board of any size and depositing the same with listing of material in store.	Each	6.0
5.13	Labour charges for dismantling of switch accessories like switch, socket, ceiling rose, holder and depositing the same with listing of material in store.	Each	3.0

Code No.	Description	Unit	Complete Rate
5.14	Labour charges for dismantling of wiring in existing conduit of following size and depositing the same with listing of material in store.		
5.14.1	up to 2.5 sq. mm. wire	R. Mtr.	2.0
5.14.2	4/ 6 sq. mm. wire	R. Mtr.	3.0
5.14.3	10 sq. mm. wire	R. Mtr.	4.0
5.15	P & F 3.0 mm thick Poly propylene plastic polished concealed fan box, square of size (106x106) mm dia, depth 50 mm , 10 mm dia rod of MS with chrome plated with 55 mm length extended on each side . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	119.0

## Chapter E - 06

### Distribution Board & it's Accessories

Code No.	Description	Unit	Complete Rate
6.1	Providing & Fixing of 240/415 V AC MCB with positive isolation of 10 kA breaking capacity (B/ C/D tripping characteristic as per type of load and site requirement) 4 KV impulse withstand voltage, ISI marked IS 8828(1996) / conforming to IEC 60898-1 2002, IEC 60947-2, low watt losses, trip free mechanism , energy limiting of class 3 as per IEC, minimum phase termination capacity of 35sq.mm. , conductor line load reversibility , IP 20 contact protection and fitted in existing distribution board/sheets, minimum electrical operation 20,000 upto 20 A rating and 10,000 upto 63 A, 5000 for 80 A & above rating including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.1.1	<b>Single pole MCB (With B/C curve tripping Characteristics)</b>		
6.1.1.1	0.5 A to 5 A rating	Each	296.0
6.1.1.2	6 A to 32 A rating	Each	187.0
6.1.1.3	40 A rating	Each	415.0
6.1.1.4	50/63 A rating	Each	415.0
6.1.1.5	80 A rating	Each	1541.0
6.1.1.6	100 A rating	Each	1722.0
6.1.1.7	125 A rating	Each	1851.0
6.1.2	<b>Double pole MCB(With B/C curve tripping Characteristics)</b>		
6.1.2.1	0.5 A to 5 A rating	Each	784.0
6.1.2.2	6 A to 32 A rating	Each	566.0
6.1.2.3	40 A rating	Each	900.0
6.1.2.4	50/63 A rating	Each	900.0
6.1.2.5	80 A rating	Each	3392.0
6.1.2.6	100 A rating	Each	3617.0
6.1.2.7	125 A rating	Each	2853.0
6.1.3	<b>Triple pole MCB (With B/C curve trippingCharacteristics)</b>		
6.1.3.1	0.5A to 5 A rating	Each	1152.0
6.1.3.2	6 A to 32 A rating	Each	910.0
6.1.3.3	40 A rating	Each	1384.0
6.1.3.4	50/63 A rating	Each	1384.0
6.1.3.5	80 A rating	Each	5346.0
6.1.3.6	100 A rating	Each	5697.0
6.1.3.7	125 A rating	Each	6318.0

Code No.	Description	Unit	Complete Rate
6.1.4	<b>Four pole MCB (With B/C curve tripping Characteristics)</b>		
6.1.4.1	0.5A to 5 A rating	Each	1445.0
6.1.4.2	6 A to 32 A rating	Each	1223.0
6.1.4.3	40 A rating	Each	1738.4
6.1.4.4	50/63 A rating	Each	1745.0
6.1.4.5	80 A rating	Each	6976.0
6.1.4.6	100 A rating	Each	7262.0
6.1.4.7	125 A rating	Each	8213.0
6.1.5	<b>Triple pole MCB (With D curve tripping Characteristics)</b>		
6.1.5.1	0.5 A to 5 A rating	Each	1186.0
6.1.5.2	6 A to 32 A rating	Each	947.0
6.1.5.3	40 A rating	Each	1452.0
6.1.5.4	50/63 A rating	Each	1452.0
6.2	Providing & Fixing of 240/415 V isolator ISI marked IS:13947-III/conforming to IEC 60947-3, suitable for AC22A utilization category, 4KV impulse withstand voltage, true contact indication, Red colour dolly / lever shall have single mould covering over all poles for operation , two position din rail mounting, minimum phase termination capacity of 35sq.mm. IP 20 contact protection and fitted in existing distribution board / sheet including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.2.1	<b>Double pole isolator</b>		
6.2.1.1	30 A / 40 A rating	Each	351.0
6.2.1.2	63 A rating	Each	453.0
6.2.1.3	80 A/ 100 A rating	Each	589.0
6.2.2	<b>Triple pole Isolator</b>		
6.2.2.1	40 A rating	Each	334.0
6.2.2.2	63 A rating	Each	705.0
6.2.2.3	80 A/ 100 A rating	Each	802.0
6.2.3	<b>Four pole Isolator</b>		
6.2.3.1	40 A rating	Each	780.0
6.2.3.2	63 A rating	Each	818.0
6.2.3.3	80 A/ 100 A rating	Each	957.0

Code No.	Description	Unit	Complete Rate
6.3	Providing & Fixing of 240/415 V factory fitted RCBO with overload, short-circuit and earth leakage protection with ISI marked (IS12640-2)/ conforming to IEC 61009-1, breaking capacity 10 KA, provision for pad lock, min. Electrical operation 10,000 upto 63 A rating , minimum phase termination capacity of 35sq.mm. , IP 20 contact protection with existing distribution board / sheet including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.3.1	<b>Two pole 30 mA sensitivity</b>		
6.3.1.1	6A-32 A rating	Each	2942.0
6.3.1.1	40 A rating	Each	2942.0
6.3.1.3	63 A rating	Each	3703.0
6.3.2	<b>Two pole 100/300mA sensitivity</b>		
6.3.2.1	6A-32 A rating	Each	3004.0
6.3.2.2	40 A rating	Each	3038.0
6.3.2.3	63 A rating	Each	3955.0
6.3.3	<b>Four pole 30 mA sensitivity</b>		
6.3.3.1	6A-32 A rating	Each	3351.0
6.3.3.2	40 A rating	Each	3518.0
6.3.3.3	63 A rating	Each	4217.0
6.3.4	<b>Four pole 100/300 mA sensitivity</b>		
6.3.4.1	6A-32 A rating	Each	3801.0
6.3.4.2	40 A rating	Each	3829.0
6.3.4.3	63 A rating	Each	4296.0
6.4	P&F 240/415 V AC Change Over Miniature circuit breaker with three positions (I-O-II) which allows supply change over from one source to second source & vice- versa, conforming to IS/ IEC 60947-3 in existing board/sheets including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.4.1	<b>Double Pole</b>		
6.4.1.1	25 Amp, 2 Module	Each	1012.0
6.4.1.2	40 Amp, 2 Module	Each	1544.0
6.4.1.3	63 Amp, 3 Module	Each	1793.0
6.4.2	<b>Four Pole</b>		
6.4.2.1	40 Amp, 4 Module	Each	2649.0
6.4.2.2	63 Amp, 6 Module	Each	3007.0

Code No.	Description	Unit	Complete Rate
6.5	Providing & Fixing of 240/415 V Residual current circuit breaker (RCCB) conforming to (IS:12640-1)/ IEC 61008 -1 , rated 4 KV impulse withstand voltage truly current operated and shall operate on CBCT mechanism, provision for pad lock, min. operation 10,000 upto 63 A rating and 5000 for 100 A rating and minimum phase termination capacity of 35 sq.mm. rigid wire , IP 20 contact protection with existing distribution board / sheet including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.5.1	<b>Two pole 30 mA sensitivity</b>		
6.5.1.1	16/25 A rating	Each	2001.0
6.5.1.2	32/40 A rating	Each	2237.0
6.5.1.3	63A rating	Each	2786.0
6.5.1.4	100 A rating	Each	4842.0
6.5.2	<b>Two pole 100/300mA sensitivity</b>		
6.5.2.1	16/25 A rating	Each	2073.0
6.5.2.2	40 A rating	Each	2366.0
6.5.2.3	63 A rating	Each	2850.0
6.5.3	<b>Four pole 30 mA sensitivity</b>		
6.5.3.1	25 A rating	Each	2642.0
6.5.3.2	40 A rating	Each	2666.0
6.5.3.3	63 A rating	Each	3021.0
6.5.3.4	100 A rating	Each	5196.0
6.5.4	<b>Four pole 100/300 mA sensitivity</b>		
6.5.4.1	25 A rating	Each	2717.0
6.5.4.2	40 A rating	Each	2762.0
6.5.4.3	63 A rating	Each	2225.0
6.5.4.4	100 A rating	Each	5288.0
6.6	Providing & Fixing of din rail mounting surge protection device confirming to IEC 61643-11 for Type 1 + 2 protection and Maximum discharge current 50 kA with following configuration in existing distribution board / sheet including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.6.1	1P + N	Each	3437.0
6.6.2	3P + N	Each	6315.0



Code No.	Description	Unit	Complete Rate
6.7	Providing & Fixing of din rail mounting contactor and accessories confirming to IEC 61095 with following description and configuration in existing distribution board / sheet including making connections, testing etc. as required.OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.7.1	Modular contactor 25A - 1NO	Each	1535.0
6.7.2	Modular contactor 25A - 2NO	Each	1919.0
6.7.3	Modular contactor 40A - 2NO	Each	3270.0
6.7.4	Modular contactor 40A - 3NO	Each	4676.0
6.7.5	Modular contactor 40A - 4NO	Each	5489.0
6.7.6	Modular contactor 63A - 2NO + 2 NC	Each	5820.0
6.7.7	Modular contactor 63A - 3NO	Each	5963.0
6.7.8	Modular contactor 63A - 4NO	Each	6555.0
6.7.9	Auxiliary contact, 2 NO	Each	1578.0
6.7.10	Auxiliary contact, 1 NO + 1 NC	Each	819.0
6.7.11	Under voltage Release	Each	1903.0
6.7.12	Shunt Trip Release	Each	2175.0
6.8	Providing & Fixing of din rail mounting LED Indicating Lights with following description and configuration in existing distribution board / sheet including making connections, testing etc. as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.8.1	Red / Yellow / Blue / Green	Each	924.0
6.8.2	Red-yellow-Blue	Each	1115.0
6.9	Providing & Fixing of Recessed/surface mounting heavy duty Enclosure made out from Galvanized steel / CRCA sheet not less than 1.2 mm thick conforming to IS-8623-1 & 3 / IEC 61439- 1 & 3. powder painted complete with din rail making internal DB terminations with copper lugs, detachable gland plate, including making connections, testing etc. as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.9.1	Suitable for Two / Three / Four module for MCB	Each	660.0
6.9.2	Suitable for Six / Eight module for MCB/ RCCB	Each	1099.0

Code No.	Description	Unit	Complete Rate
6.10	Providing & Fixing of Recessed/surface mounting heavy duty horizontal type Double Door ( Metal / Glazed )Distribution board with Metal end box made out from Galvanized steel / CRCA sheet not less then 1.2 mm thick conforming to IS-8623-1 & 3 / IEC 61439- 1 & 3, powder painted complete with reversible door (for double door DB only )100 amp. insulated copper bus bar/shorting link , copper neutral link, copper earth link , color coded interconnecting wire set of suitable rating and din bar,masking sheet, making internal DB terminations with copper lugs, Ferrules, detachable gland plate, including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.10.1	<b>Metal door (single phase) IK-09 and IP-43 with Metal end box</b>		
6.10.1.1	4 Way (4+2)	Each	1795.0
6.10.1.2	6 Way (6+2)	Each	2018.0
6.10.1.3	8 Way (8+2)	Each	2184.0
6.10.1.4	12 Way (12+2)	Each	2590.0
6.10.1.5	16 Way (16+2)	Each	3389.0
6.10.2	<b>Glazed door (single phase) IK-09 and IP-43 with Metal end box</b>		
6.10.2.1	4 Way (4+2)	Each	2146.0
6.10.2.2	6 Way (6+2)	Each	2373.0
6.10.2.3	8 Way (8+2)	Each	2581.0
6.10.2.4	12 Way (12+2)	Each	2990.0
6.10.2.5	16 Way (16+2)	Each	3921.0
6.10.3	<b>Metal door (Three phase) IK-09 and IP-43 with Metal end box</b>		
6.10.3.1	4 Way	Each	3838.0
6.10.3.2	6 Way	Each	4811.0
6.10.3.3	8 Way	Each	5980.0
6.10.3.4	12 Way	Each	8852.0
6.10.4	<b>Glazed door (Three phase) IK-09 and IP-43 with Metal end box</b>		
6.10.4.1	4 Way	Each	4806.0
6.10.4.2	6 Way	Each	6126.0
6.10.4.3	8 Way	Each	7533.0
6.10.4.4	12 Way	Each	10660.0
6.10.5	<b>Metal door (Three phase) Per phase isolation, Horizontal IK-09 and IP-43 with Metal end box</b>		
6.10.5.1	4Way(Incomer 8,Sub Incomer2+2+2)	Each	6320.0
6.10.5.2	6Way(Incomer 8,Sub Incomer2+2+2)	Each	7618.0
6.10.5.3	8Way(Incomer 8,Sub Incomer2+2+2)	Each	9168.0
6.10.5.4	12 Way(Incomer 8,Sub Incomer2+2+2)	Each	12248.0

Code No.	Description	Unit	Complete Rate
6.10.6	<b>Metal door (Three phase) Per phase isolation,Vertical IK-09 and IP-43 with Metal end box</b>		
6.10.6.1	4Way(Incomer 8,Sub Incomer2+2+2)	Each	7494.0
6.10.6.2	6Way(Incomer 8,Sub Incomer2+2+2)	Each	9153.0
6.10.6.3	8Way(Incomer 8,Sub Incomer2+2+2)	Each	9814.0
6.10.6.4	12 Way(Incomer 8,Sub Incomer2+2+2)	Each	10655.0
6.11	Providing & Fixing of Recessed/surface mounting heavy duty horizontal type TPN phase selector Distribution board with Metal end box made out from Galvanized steel / CRCA sheet not less then 1.2 mm thick conforming to IS-8623-1 & 3 / IEC 61439- 1 & 3. powder painted with reversible door (for double door DB only ) complete with 100 amp. insulated copper bus bar/ shorting link , neutral link, earth link , color coded interconnecting wire set of suitable rating and din bar,masking sheet provided with 3 nos 63 Amp rotary switches,3 nos rocker switches for phase identifications etc. making internal DB terminations with copper lugs, ferrules, detachable gland plate, including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.11.1	<b>Double door. IK-09 and IP-43 with Metal end box</b>		
6.11.1.1	4Way(Incomer 8,Outgoing 4+4+4)	Each	11591.0
6.11.1.2	6Way(Incomer 8,Outgoing6+6+6)	Each	11856.0
6.11.1.3	8Way(Incomer 8,Outgoing 8+8+8)	Each	13215.0
6.11.1.4	12Way(Incomer 8,Outgoing 12+12+12)	Each	15016.0
6.12	Providing & Fixing of Recessed/surface mounting heavy duty Flexi / Row type Distribution board with Metal end box made out from Galvanized steel / CRCA sheet not less then 1.2 mm thick conforming to IS-8623-1 & 3 / IEC 61439- 1 & 3. powder painted with reversible door (metal or Glazed) complete with 100 Amp. copper shorting link , neutral link, earth link , color coded interconnecting wire set of suitable rating and din bar,masking sheet, making internal DB terminations with copper lugs, ferrules detachable gland plate, including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.12.1	<b>Metal door IK-09 &amp; IP-43 with Metal end box</b>		
6.12.1.1	2 Row 28 Module(14 module per row)	Each	4668.0

Code No.	Description	Unit	Complete Rate
6.12.1.2	3 Row 42 Module(14 module per row)	Each	5423.0
6.12.1.3	4 Row 56 Module(14 module per row)	Each	5951.0
6.12.1.4	4 Row 64 Module(16 module per row)	Each	6836.0
6.12.2	<b>Glazed door IK-09 &amp; IP-43 with Metal end box</b>		
6.12.2.1	2 Row 28 Module(14 module per row)	Each	4994.0
6.12.2.2	3 Row 42 Module(14 module per row)	Each	5923.0
6.12.2.3	4 Row 56 Module(14 module per row)	Each	6663.0
6.12.2.4	4 Row 64 Module(16 module per row)	Each	7360.0
6.13	P&F metal clad / Plastic industrial plug top & socket unit with pin and sleeve type contact on porcelain/ bakelite base in Recessed/surface mounting heavy duty Enclosure made out from Galvanized steel / CRCA sheet not less than 1.2 mm thick conforming to IS-8623-1 & 3 / IEC 61439- 1 & 3. powder painted (without MCB) including making connections, testing etc.as required.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.13.1	20 amp, 2 pin + scrapping Earth, 1 Module	Each	1279.0
6.13.2	20 amp, 2 pin + scrapping Earth, 2 Module	Each	1386.0
6.13.3	20 amp, 3 pin + scrapping Earth, 4 Module	Each	2052.0
6.13.4	32 amp, 5 pin + scrapping Earth, 8 Module	Each	2754.0
6.13.5	63 amp, 5 pin + scrapping Earth, 8 Module	Each	9776.0
6.14	P & F of Industrial plug and socket conforming to IEC 60309-1/2 made out of self extinguishing engineering polymer / polyamide, nickel plated brass sleeve and pins, socket with shutter including making connection etc as reqd. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.14.1	<b>IP -67 Panel mounted socket</b>		
6.14.1.1	16 A 3 pin(2P+E)	Each	791.0
6.14.1.2	32 A 3 pin(2P+E)	Each	979.0
6.14.1.3	32 A 5 pin(3P+N+E)	Each	1234.0
6.14.1.4	63 A 5 pin(3P+N+E)	Each	3532.0
6.14.2	<b>IP -67 Surface/Wall mounted socket</b>		
6.14.2.1	16 A 3 pin(2P+E)	Each	1046.0
6.14.2.2	32 A 3 pin(2P+E)	Each	1222.0
6.14.2.3	32 A 5 pin(3P+N+E)	Each	2266.0

Code No.	Description	Unit	Complete Rate
6.14.2.4	63 A 5 pin(3P+N+E)	Each	4517.0
6.14.3	<b>IP -67 Surface/Wall mounted Interlocked Switched socket Outlet Vertical</b>		
6.14.3.1	16 A 3 pin(2P+E)	Each	7186.0
6.14.3.2	32 A 3 pin(2P+E)	Each	8322.0
6.14.3.3	32 A 5 pin(3P+N+E)	Each	9762.0
6.14.4	<b>IP - 67 Plug top</b>		
6.14.4.1	16 A 3 pin(2P+E)	Each	762.0
6.14.4.2	32 A 3 pin(2P+E)	Each	1028.0
6.14.4.3	32 A 5 pin(3P+N+E)	Each	1142.0
6.14.4.4	63 A 5 pin(3P+N+E)	Each	2990.0
6.15	Providing & Fixing of Recessed/surface mounting heavy duty Vertical TPN Distribution board with Metal end box with provision of incomer suitable for MCB / RCCB and SP / TP MCB as outgoing ,made out from Galvanized steel / CRCA sheet not less then 1.2 mm thick conforming to IS-8623-1 & 3 / IEC 61439- 1 & 3. powder painted with reversible door (for double door DB only ) complete with insulated 100 A rating copper bus bar, neutral bars with shrouds, earth bar , color coded interconnecting wire set of suitable rating and din bar,masking sheet, making internal DB terminations with copper lugs, ferrules, detachable gland plate, including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.15.1	<b>Double door IK-09 &amp; IP-43 with Metal end box</b>		
6.15.1.1	4 Way(8+12)	Each	8255.0
6.15.1.2	6 Way(8+18)	Each	9425.0
6.15.1.3	8 Way(8+24)	Each	10580.0
6.15.1.4	12 Way(8+36)	Each	13984.0

Code No.	Description	Unit	Complete Rate
6.16	Providing & Fixing of Recessed/surface mounting heavy duty Vertical TPN Distribution board with Metal end box with provision of incomer suitable for 3/4 pole MCCB and SP / TP MCB as outgoing ,made out from Galvanized steel / CRCA sheet not less then 1.2 mm thick conforming to IS-8623-1 & 3 / IEC 61439- 1 & 3. powder painted with reversible door (for double door DB only ) complete with insulated 160 (upto 160 A Incomer) / 250 Amp. copper bus bar, neutral bars with shrouds, earth bar , color coded interconnecting wire set of suitable rating and din bar,masking sheet, making internal DB terminations with copper lugs, ferrules, detachable gland plate, including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test reports & All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.16.1	<b>Double door IP-43 &amp; IK-09 with Provision of Incomer MCCB 100/ 125 A Rating with Metal end box</b>		
6.16.1.1	4 Way	Each	11538.0
6.16.1.2	6 Way	Each	12751.0
6.16.1.3	8 Way	Each	13775.0
6.16.1.4	12 Way	Each	17813.0
6.16.2	<b>Double door IP-43 &amp; IK-09 with Provision of Incomer MCCB 160 A Rating with Metal end box</b>		
6.16.2.1	4 Way	Each	13778.0
6.16.2.2	6 Way	Each	15274.0
6.16.2.3	8 Way	Each	16589.0
6.16.2.4	12 Way	Each	18858.0
6.16.3	<b>Double door IP-43 &amp; IK-09 with Provision of Incomer MCCB 250 A Rating with Metal end box</b>		
6.16.3.1	4 Way	Each	15200.0
6.16.3.2	6 Way	Each	16831.0
6.16.3.3	8 Way	Each	18103.0
6.16.3.4	12 Way	Each	20755.0
6.17	P & F Surface mounting IP-65, IK-09 Class-II self extinguishing insulating material weather proof cabinets confirming to EN60439- 3 with IP-65 Key lock, fully reversible door and cabinet, removable chasis and face plates, of following size. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
6.17.1	1 row 3/4 module	Each	2487.00
6.17.2	1 row 6 module	Each	2955.00
6.17.3	1 row 12 module	Each	4550.00
6.17.4	1 row 18 module	Each	5303.00
6.17.5	2 row x 12 module	Each	5991.00
6.17.6	2 row x 18 module	Each	8628.00
6.17.7	3 row x 12 module	Each	10379.00

## Chapter E - 07

### Electrical Accessories

Code No.	Description	Unit	Complete Rate
7.1	P & F ISI marked (IS:3854) 6 amp. flush type non modular switch with CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material including cutting hole in tile and making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	23.0
7.2	P & F ISI marked (IS :3854) 16 amp. flush type non modular switch CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material including cutting hole in tile and making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	50.0
7.3	Providing & Fixing of 6 amp. Combined flush type non modular socket and switch set as per PWD specification for electrical Works,made out from industrial grade Polycarbonate or fire resistant ABS material including cutting hole in tile and making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	123.0
7.4	Providing & Fixing of 16 amp. Combined flush type non modular socket and switch set with indicator and fuse set as per PWD specification for electrical Works, made out from industrial grade Polycarbonate or fire resistant ABS material including cutting hole in tile and making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	180.0
7.5	Providing & Fixing of ISI marked (IS :3854) non modular 6A bell push surface type CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material including making connection testing etc. as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	34.0
7.6	Providing & Fixing of ISI marked (IS :3854) twin control non modular 6A switch surface type as per PWD specification for electrical Works, made out from industrial grade Polycarbonate or fire resistant ABS material, brass terminal & captive screws including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	48.0

Code No.	Description	Unit	Complete Rate
7.7	Providing & Fixing of ISI marked (IS :3854) non modular 6A bell push flush type CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material including cutting hole in tile and making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	34.0
7.8	Providing & Fixing of ISI marked (IS :3854) twin control non modular 6A switch flush type as per PWD specification for electrical Works, made out from industrial grade Polycarbonate or fire resistant ABS material, including cutting hole in tile and making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	30.0
7.9	Providing & Fixing of ISI marked non modular 6A hanging bell push/one way switch made out from industrial grade Polycarbonate or fire resistant ABS material including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	38.0
7.10	Providing & Fixing of of 3/5 pin 6 amp. flush type non modular socket made out from industrial grade Polycarbonate or fire resistant ABS material, brass terminal with Porcelain based back cover & captive screws including cutting hole in tile and making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	33.0
7.11	Providing & Fixing of 3/6 pin 16 amp flush type non modular socket made out from Industrial grade Polycarbonate or fire resistant ABS material, brass terminal with Porcelain based back cover & captive screws including cutting hole in tile and making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	78.0
7.12	Providing & Fixing of ISI marked (IS:371) 6 amp surface type 3 pin ceiling rose with CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material, brass terminal & captive screws including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	30.0
7.13	Providing & Fixing of ISI marked (IS:1258) batten/angle lamp holder with CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material, brass terminal & captive screws including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	30.0



Code No.	Description	Unit	Complete Rate
7.14	Providing & Fixing of ISI marked (IS:1293) 6 amp unbreakable 3 pin plug top having lamp indicator with CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material, brass terminal including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	44.0
7.15	Providing & Fixing of ISI marked (IS:1293) 16 amp unbreakable 3 pin plug top having lamp indicator with CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material, brass terminal including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	68.0
7.16	Providing & Fixing of flush type non modular 2 pin telephone socket with plug top made out from industrial grade Polycarbonate or fire resistant ABS material, brass terminals including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	59.0
7.17	Providing & Fixing of flush type non modular single line telephone jack made out from industrial grade Polycarbonate or fire resistant ABS material, including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	72.0
7.18	Providing & Fixing of flush type non modular double line telephone jack made out from industrial grade Polycarbonate or fire resistant ABS material including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	86.0
7.19	Providing & Fixing of flush type non modular coaxial T.V. socket made out from industrial grade Polycarbonate or fire resistant ABS material, including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	48.0
7.20	Providing & Fixing of IS 11037:1984 marked non modular socket size flush type 120 watt rotary minimum 5 step fan regulator with CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	199.0

Code No.	Description	Unit	Complete Rate
7.21	Providing & Fixing of IS 11037:1984 marked non modular socket size flush type 180 watt rotary minimum 5 step fan regulator with CM/L no. printed and made out from industrial grade Polycarbonate or fire resistant ABS material including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	219.0
7.22	P & F ISI marked 32 A D.P. switch with fuse and indicating lamp including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	173.0
7.23	Providing & Fixing of ISI marked (IS:2268-1994) gong bell with CM/L no. printed including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	173.0
7.24	Providing & Fixing of ISI marked surface type buzzer (IS:2268-1994) with CM/L no. printed including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	109.0
7.25	Providing & Fixing of single / multi tone electronic call bell as per PWD specification for electrical Works, including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	492.0
7.26	Providing & Fixing of ding dong/musical chime bell as per PWD specification for electrical Works, including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	328.0
7.27	Providing & Fixing of modular type switch/ bell push duly ISI marked (IS :3854) with CM/L no. printed and made out of unbreakable and fire retardant vergin UV Stabilized Polycarbonate with brass terminals and captive screws & silver alloy contact tip with IP-20 rating ,minimum width of switch toggle( PUSH PART ) should not less then 20mm, including all as per pre approved by Engineer in charge,making connections, testing etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
7.27.1	10 A one way switch	Each	55.0
7.27.2	10 A two way switch	Each	79.0
7.27.3	10 A bell push	Each	110.0
7.27.4	16 A one way switch With Led Indicator	Each	113.0
7.27.5	16 Amp. 2 Module switch With Led Indicator	Each	147.0
7.27.6	25 Amp. 2 Module switch With Led Indicator	Each	200.0
7.27.7	32 Amp. 2 Module switch With Led Indicator	Each	369.0

Code No.	Description	Unit	Complete Rate
7.28	Providing & Fixing of modular type lockable feature socket duly made out of unbreakable and fire retardant vergin poly carbonate with brass terminals and captive screws & silver alloy contact tip with IP-20 rating , including all as per pre approved by Engineer in charge,making connections, testing etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
7.28.1	6 A 3/5 pin shuttered socket	Each	107.0
7.28.2	6/16 A shuttered socket	Each	176.0
7.28.3	13 A flat pin international socket	Each	187.0
7.28.4	25 Amp. 2 Module Socket	Each	228.0
7.29	Providing & Fixing of modular type 120 W Step Fan regulator duly ISI marked (IS 11037:1984 ) with CM/L no. printed made out of unbreakable and fire retardant vergin poly carbonate with brass terminals and captive screws & silver alloy contact tip with IP-20 rating , including all as per pre approved by Engineer in charge,making connections, testing etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
7.29.1	5 step fan regulator 2 Module 360 dgree rotating	Each	398.0
7.30	Providing & Fixing of following modular accessories as per PWD specification for electrical Works, made out of unbreakable and fire retardant vergin poly carbonate with brass terminals and captive screws & silver alloy contact tip with IP-20 rating , including all as per pre approved by Engineer in charge,making connections, testing etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
7.30.1	RJ-11 telephone jack single line	Each	142.0
7.30.2	RJ-11 telephone jack Double line	Each	169.0
7.30.3	USB Charger 1 A - 1 M with BIS mark	Each	483.0
7.30.4	RJ-45, Cat 6 computer jack with shutter	Each	316.0
7.30.5	T.V. coaxial socket	Each	159.0
7.30.6	Blanking plate	Each	22.0
7.30.7	25 Amp. 2 Module Motor Starter with on / off Push button	Each	388.0
7.30.8	LED Skirting /Foot Light 2 Module	Each	361.0
7.30.9	Electronic Chime/Buzzer 2M	Each	212.0
7.30.10	Modular MCB 6 A to 32 A SP	Each	225.0
7.30.11	Modular MCB 6 A to 32 A DP	Each	461.0
7.31	Providing & Fixing of following size mounting grid plates with cover plates made from fire retardent UV established high performance engineering plastic suitable for all universal metal boxes for front installation & removal direct fit type complete in all respect.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
7.31.1	1/2 Module	Each	65.0
7.31.2	3 Module	Each	86.0
7.31.3	4 Module	Each	89.0
7.31.4	5 Module	Each	105.0
7.31.5	6 Module	Each	114.0
7.31.6	8 Module	Each	155.0

Code No.	Description	Unit	Complete Rate
7.31.7	10 Module	Each	198.0
7.31.8	12 Module	Each	214.0
7.31.9	16/18 Module	Each	316.0
7.32	Providing & Fixing of Wiring Accessories OEM fabricated following size GI box of 1.2 mm thick with earthing terminal and adjustable floating clamp in recess/ surface suitable for modular accessories as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
7.32.1	1-2 Module	Each	86.0
7.32.2	3 Module	Each	120.0
7.32.3	4/5 Module	Each	140.0
7.32.4	6 / 8 module	Each	204.0
7.32.5	10 / 12 module	Each	286.0
7.32.6	16/18 module	Each	417.0
7.33	Providing & Fixing of Wiring Accessories OEM fabricated following size virgin material UPVC modular boxes on surface suitable for modular accessories as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
7.33.1	1-2-3 Module	Each	98.0
7.33.2	4-5 Module	Each	152.0
7.33.3	6-8 Module	Each	216.0
7.33.4	10-12 Module	Each	287.0
7.33.5	16/18 Module	Each	332.0
7.34	Providing & Fixing of of ISO certified company made Multiple socket with surge and spikes protection cartridge not less then 5 KV as per PWD specification for electrical Works with minimum four nos. universal 6 A sockets, one 6 A switch and 3 pin company fitted plug top and 3 core multistrand copper lead minimum 1.5 mtr. including making connection etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	572.0
7.35	Providing & Fixing of ISO certified company made virgin material PVC trunking system as per PWD specification for electrical Works, with double lock feature for cable management including finishing accessories like corners, tees, adjustable angles, junction etc. as required . The trunking system shall have adaptable system for modular type RJ 45 data socket/ wiring accessories/ power sockets and shall be covered with peel off plastic cover. OEM shall have submit NABL accredited /CPET lab test reports before execution & All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
7.35.1	32mm X 20mm	Mtr.	228.0
7.35.2	80mm x 50mm	Mtr.	997.0
7.35.3	100/105mm x 50mm	Mtr.	1181.0
7.35.4	150/160mm x 50mm	Mtr.	1994.0
7.35.5	195/200mm x 50mm	Mtr.	2544.0

Code No.	Description	Unit	Complete Rate
7.36	Providing and fixing of power plug point with non modular accessories as per PWD specification for electrical Works with Galvanized box of 1.2 mm thick with earth terminal with suitable size phenolic laminated sheet (IS : 2036 - 1995) cover including cost of 16 amp. Switch (IS :3854) and 3/6 pin 16 amp. socket outlet making connection , testing , etc. as required. . For specification of Wiring accessories refer Chapter E - 07 related item & For additional technical parameters of product / work refer Annexure 'A' attached with this BSR	Each	303.00
7.37	Supplying and fixing of power plug point with Modular accessories as per PWD specification for electrical Works, on hot dipped galvanized modular box of 1.2 mm thick with earthing terminal/connector on surface or in recessed with suitable size of modular face plate with grid plate and cover plate including cost of ISI marked modular 16 amp. Switch (IS :3854) and 6/16 amp. socket outlet (IS:1293) making connection , testing , etc. as required. For specification of Wiring accessories refer Chapter E - 07 related item & For additional technical parameters of product / work refer Annexure 'A' attached with this BSR	Each	580.00
7.38	P & F Krone module with base frame in the recess / surface made out of 1.2 mm thick sheet steel box, front openable, having locking arrangements duly powder painted,including dressing, ferruling and punching of telephone cable with krone tool etc. as required. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
7.38.1	10 Pairs	Each	943.00
7.38.2	20 Pairs	Each	1213.00
7.38.3	50 Pairs	Each	2561.00
7.38.4	100 Pairs	Each	4988.00
7.38.5	200 Pairs	Each	8424.00

## Chapter E - 08

### LT Panels & Accessories

Code No.	Description	Unit	Complete Rate
8.1	<p>SITC of IP-42 and general construction confirming to IS:8623 : 1993, wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel as specifications and Other parameters required as per point (a) ,(b), (c),(d), (e), (f), (g), (h) as below:-</p> <p><b>(a)</b> Thickness of CRCA sheet shall be 2.0 mm, cable alley compartments having concealed hinged type doors with key type lock with / without detachable extension type structure. Removable 3 mm. thick sheet steel gland plates with appropriate size of knockouts for cables shall be provided</p> <p><b>(b)</b> complete panel shall undergo a process of degreasing, Water rinsing, Activation, derusting, pickling in acid bath, phosphatising &amp; shall be subjected to nine tank process and then Powder coated with approved shade of minimum 70 microns on both side of panel. The panel having PE foam/ Neoprene rubber gasket of not less than 3mm thickness ,required hardware , concealed hinged door with key type locking arrangement for equipment/switchgear earthed with 2.5 sq.mm braided copper wire.</p> <p><b>(c)</b> Interconnection between bus bar and switchgears /cable shall be rigidly supported and made out by flexible copper wires (up to 63 amp ) and by solid bus bar (&gt;63 amp ) . control wiring will be carried out with 1.5 Sq.mm, Earth wire with 2.5 Sq.mm and CT with 2.5 sq.mm flexible copper wire only. All joints / interconnections of copper bus bar shall be dully tinned . Clearance between main bus bar and risers / metal parts shall be at least 10 mm additional to width of bus bar Bus bar is insulated by Heat Shrinkable sleeves . Earth and Neutral bus bar shall be half of the size of phase bus bar. ( Cost of Bus bar / Flexible wire for Interconnection between Main busbar and Switchgear is to be Paid Extra )</p> <p><b>(d)</b>Wiring between components within switchgear and Incoming / outgoing cable shall be done through the terminal block only. Direct connection shall not be permitted. Each terminal block shall be one piece moulded, barrier type, 650 volt grade, complete with washers, heads, studs with two nuts and identification strips and shall have adequate continuous current rating. For tap-offs, adjacent terminals with shorting strips shall be used. 10% Spare terminal blocks shall be provided. Wire identification on marking strip shall correspond to the designation of the wiring diagrams. All wire terminals on the equipment shall also be marked with designation corresponding to those of the wiring diagram.</p> <p><b>(e)</b>All wiring shall be enclosed in plastic channels and neatly bunched and closed in metering chamber, Wiring between terminals of various devices shall be 'point to point' (no wire splitting or tee connections) with wires neatly trucked along the back of the panels, adequately supported to prevent sagging.</p> <p><b>(f)</b>Floor mounted panel shall be mounted on Base frame of ISMC channel size 100 x 50 x 5 mm ( to be paid Extra )</p>		

Code No.	Description	Unit	Complete Rate
	<p><b>(g)</b> Tests: The insulation resistance (with 1000 V Megger) and High voltage Power frequency test (by applying a voltage of 2.5KV for one minute) shall be measured between phases, between phase and neutral and between phase and earth. both before and after high voltage power frequency test. The insulation resistance shall not be less than three megaohm. CT Secondary current injection test shall also be carried out.</p> <p><b>(h)</b> only outer surface area on all sides shall be measured &amp; panel to be fabricated only from CPRI approved fabricator only (CPRI Test certificates to be submitted)All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>	Sq. Mtr	5975.0
8.2	Supplying and fixing of Aluminium (IEC 60105 ISO 209-1,2) / Copper (IEC 60028) bus bar by means of SMC / DMC type insulator with standard short circuit withstand capacity , high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.2.1	Electrolytic grade Aluminium bus bar 6010 grade	Kg.	542.0
8.2.2	Electrolytic grade (Cu-ETP) Tin Coated annealed copper bus bars IACS 100% grade	Kg.	1301.0
8.3	Providing & Fixing of IS: 13875 & IEC :61326 confirming LED Digital type (up to 500) V range Volt meter / Direct- Ammeter / CT oertated ammeter/ Frequency meter / KWH meter / Multi Function Meter / Power analyzer of class 1 accuracy as per IS : 1248 of size 96mm x 96 mm including making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.3.1	Single Phase Ammeter	Each	1172.0
8.3.2	Single Phase Voltmeter	Each	1172.0
8.3.3	Three phase Ammeter with Inbuilt Selector Switch	Each	1689.0
8.3.4	Three phase Voltmeter with Inbuilt Selector Switch	Each	1689.0
8.3.5	Three phase KWH Meter	Each	3530.0
8.3.6	Three phase KWH Meter Dual Source	Each	3858.0
8.3.7	Frequency Meter	Each	1172.0
8.3.8	Three phase AMP+HZ+PF+KW+KVA+KVAR+T.ENERGY+THD-I, THD-V & RUN HRS	Each	3252.0
8.3.9	Three phase AMP + HZ + PF + KW + KVA + KVAR + KVARH+KWH+DUAL ENERGY+ ENERGY+THD-I, THD-V & RUN HRS	Each	5241.0
8.3.10	Three phase with universal Auxiliary supply + AMP + HZ + PF + KW + KVA + KVAR + KVARH + KWH + DUAL ENERGY+ ENERGY+THD-I, THD-V & RUN HRS + MD with RS485	Each	6272.0

Code No.	Description	Unit	Complete Rate
8.4	Providing & Fixing of BIS approved Current Transformer as per PWD specification for electrical Works ,ISI marked as per IS 2705-1992/ conforming to IEC 60044-1, with secondary terminal of CT shall be brought out suitable to a terminal block which shall be easier accessible for testing and terminal connection , with all necessary support in existing panel including connection etc. as required Current transformer Ring Type Tape Wound/Resin Cast Wound as per IS 16227 with, Accuracy Cl, CT ratio and burden as specified. ISF<=5, Cu cross section of secondary wire 1.5sqmm (minimum), including all necessary support in existing panel including connection etc. as required . All as per pre approved by Engineer in charge.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>8.4.1</b>	<b>Ring type tape wound CT</b>		
8.4.1.1	C T Class 1, Ratio upto 150/5, Burden 5 VA	Each	614.0
8.4.1.2	C T Class 1, Ratio 200/5 to 300/5, Burden 10 VA	Each	788.0
8.4.1.3	C T Class 1, Ratio 400/5 to 1200/5, Burden 15 VA	Each	919.0
8.4.1.4	C T Class 1, Ratio 1600/5 to 3000/5, Burden 15 VA	Each	1768.0
8.4.1.5	C T Class 1, Ratio 3200/5 to 4000/5, Burden 15 VA	Each	2963.0
<b>8.4.2</b>	<b>Resin cast wound type CT</b>		
8.4.2.1	C T Class 1, Ratio upto 150/5, Burden 5 VA	Each	1214.0
8.4.2.2	C T Class 1, Ratio 200/5 to 300/5, Burden 10 VA	Each	1312.0
8.4.2.3	C T Class 1, Ratio 400/5 to 1200/5, Burden 15 VA	Each	1574.0
8.4.2.4	C T Class 1, Ratio 1600/5 to 3000/5, Burden 15 VA	Each	2586.0
8.4.2.5	C T Class 1, Ratio 3200/5 to 4000/5, Burden 15 VA	Each	4360.0
8.5	Providing & Fixing of selector switch of 10 A for voltmeter using high grade engineering material to international standards with cam assembly insulation of glass filled polyamide with high tracking index. For reliable and stable electrical and mechanical endurance double butt contacts with silver bi-metal on copper should provided . contact assembly is of operating temp range -25 degree C to 55 degree C, frequency upto 10 KHz. switch life under std. op. conditions shall be mechanically minimum 50000 operations @300 cycles/ hour and electrically 10,000 operations at 100% rated duty for 100 cycles/ hour including making connection etc. as required . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.5.1	Voltage Between Phases with OFF ( 4 Position )	Each	351.0
8.5.2	Voltage Between Phases & Individual Phases to Neutral with OFF ( 7 Position )	Each	692.0
8.6	Providing & Fixing of CT linked selector switch of 10 A for Ampere meter (4 position ) using high grade engineering material to international standards with cam assembly insulation of glass filled polyamide with high tracking index. For reliable and stable electrical and mechanical endurance double butt contacts with silver bi-metal on copper should provided . contact assembly is of operating temp range -25 degree C to 55 degree C, frequency upto 10 KHz. switch life under std. op. conditions shall be mechanically minimum 50000 operations @300 cycles/ hour and electrically 10,000 operations at 100% rated duty for 100 cycles/ hour , including making connection etc. as required .All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	384.0



Code No.	Description	Unit	Complete Rate
8.7	Providing & Fixing of Cam operated rotary (Auto/manual) switches on existing panel with 2 way and off position using high grade engineering material to international standards with cam assembly insulation of glass filled polyamide with high tracking index. For reliable and stable electrical and mechanical endurance double butt contacts with silver bi-metal on copper should provided . contact assembly is of operating temp range -25 degree C to 55 degree C, frequency upto 10 KHz. switch life under std. op. conditions shall be mechanically minimum 50000 operations @300 cycles/ hour and electrically 10,000 operations at 100% rated duty for 100 cycles/ hour including making connection etc. as required . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.7.1	10 AMP	Each	363.0
8.7.2	16 Amp	Each	428.0
8.7.3	32 AMP	Each	504.0
8.7.4	63 AMP	Each	880.0
8.8	Providing & Fixing of 110/220 V, unibody LED Indicating lamp IEC 60947 with integral circuit, IP 65 above panel & IP 20 terminal block, Approx. body dia for panel not less then 20 mm, length min. 50mm, front LED cover dia min. 29 mm, contact material phospher bronze for Led, PCB contacts shall be of brass (tin plated), impulse dielectric tested for 2.5 KV, Rated insulation resistance shall be 100 M ohm at 500VDC including connection etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.8.1	Red/yellow/Green colour	Each	170.0
8.8.2	Blue / white Colour	Each	260.0
8.9	Providing & Fixing of flush head push button actuators IEC 60947 with integral circuit, IP 65 above panel & IP 20 terminal block, Approx. body dia for panel not less then 20 mm, length min. 50mm, front LED cover dia min. 29 mm, contact material phospher bronze for Led, PCB contacts shall be of brass (tin plated), impulse dielectric tested for 2.5 KV, including connection etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.9.1	Non luminous type	Each	164.0
8.9.2	Luminous type Red , Yellow, Green, Amber	Each	215.0
8.9.3	Luminous type Blue , white	Each	344.0
8.10	Providing & Fixing of Electrical insulating rubber matts as per PWD specification for electrical Works, ISI marked confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.10.1	3.3 KV, class A 2 mm thick with proof voltage 10 KV AC (rms) and Break Down Voltage 30 KV AC (rms)	SQ.Mtr.	1498.0
8.10.2	11 KV, Class B 2.5 mm thick with proof voltage 22 KV AC (rms) and Break Down Voltage 45 KV AC (rms)	SQ.Mtr.	2043.0
8.10.3	33 KV, class C 3 mm thick with proof voltage 36 KV AC (rms) for 3 min. and Break Down Voltage 65 KV AC (rms)	SQ.Mtr.	2316.0

Code No.	Description	Unit	Complete Rate
8.11	Providing & Fixing of self healing IP20 MPP type shunt capacitor (banks) conforming to IS:13340-41 / IEC :831-1&2 OR IEC : 60831-1& 2 in existing panel or parallel with load terminals , the capacitor shall be fitted with discharge resistors, pressure sensitive disconnecter ( PSD ) and shall have dissipation factor less than 0.0025 at 50 Hz, Operating loss less than 0.30 Watt per KVAR. Min over current capacity 1.8 times rated current & peak inrush current min. 300 times of rated current, life expectancy greater than 100000hrs (temp class - 25 D) in 440 V/480 V Capacitor and for 525 V should life expectancy minimum 1,65,000 hrs (temp class - 25 D) including making connections, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.11.1	Heavy duty Three phase 440 V, 50 Hz cylindrical type capacitor (Bank)	KVAR	374.0
8.11.2	Heavy duty Three phase 480 V, 50 Hz cylindrical type capacitor (Bank)	KVAR	415.0
8.11.3	Heavy duty Three phase 525V, 50 Hz cylindrical type capacitor (Bank)	KVAR	470.0
8.12	Providing & Fixing of 3-Phase 415/440 V , 7 % / 14 % Detuned Reactors conforming to IEC 61558-2-20 & IEC 60076-6 Aluminium wound for harmonics filter with 180% to 200 % Linearity, H - Class Insulation ( 180 degree C), high temp. Disconnection above 155 deg C., ambient temperature: +60 deg C. with thermal cut off switch in existing panel with following Capacitor ratings. including making connections, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>8.12.1</b>	<b>7 % (189 Hz) Aluminium wound Reactors</b>		
8.12.1.1	For 1 to 5 KVAR capacitor		5295.0
8.12.1.2	10 KVAR		7430.0
8.12.1.3	12.5 KVAR		8133.0
8.12.1.4	15 KVAR		8728.0
8.12.1.5	20 KVAR		10445.0
8.12.1.6	25 KVAR		11098.0
8.12.1.7	50 KVAR		17507.0
8.12.1.8	100 KVAR		35350.0
<b>8.12.2</b>	<b>14 % (133 Hz) Aluminium wound Reactors</b>		
8.12.2.1	For 1 to 5 KVAR capacitor		8208.0
8.12.2.2	10 KVAR		10291.0
8.12.2.3	12.5 KVAR		11727.0
8.12.2.4	15 KVAR		12202.0
8.12.2.5	20 KVAR		14930.0
8.12.2.6	25 KVAR		15720.0
8.12.2.7	50 KVAR		25702.0
8.12.2.8	100 KVAR		47811.0

Code No.	Description	Unit	Complete Rate
8.13	Providing & Fixing of IP54 microprocessor based 3 CT's for all 3 phase sensing compensation power factor correction relay Size 139mm x 139 mm, Operating Voltage 415/440 V , IEC / EN 61000-6-(2&4) having 3 CT sensing, sensitivity up to 50 milli amp secondary current , self analysing auto c/k setting according to targeted power factor setting, the relay shall have digit display unit for display of real power factor, targeted power factor, lag/lead capacitor switching status, alarm output for under current, over current, insufficient compensation, communication interface with RS 485, indication of switching on units, auto/manual status, and shall have over load protection, no volt release , having multi parameter like KW, KVA, KVAR, RMS Value, step switching time 2 sec to 1800 sec. Lead & Lag parameters, metering facility and 3 no. Class- 0.5 Cast Resin CT ( refer CT specs in this chapter )for sensing the relay including making coonection with 1.5 Sq.mm copper wire etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.13.1	6 to 8 stage	Each	14995.0
8.13.2	12 to 14 stage	Each	19624.0
8.14	Providing & Fixing of AC operated heavy duty 230 /440 Volt power contactor as per PWD specification for electrical Works, ISI marked IS/IEC 60947-4-1 : 2000 having provision of mechanical interlocking, auxilary contacts, Din rail mounting type including making connections, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>8.14.1</b>	<b>3 pole Power contactors with following AC 3 Rating</b>		
8.14.1.1	Up to 12 Amp	Each	1033.0
8.14.1.2	13 to 25 Amp	Each	1346.0
8.14.1.3	32 Amp.	Each	2784.0
8.14.1.4	40 Amp	Each	4019.0
8.14.1.5	50 Amp	Each	5450.0
8.14.1.6	70 Amp	Each	7618.0
8.14.1.7	80 Amp	Each	9405.0
8.14.1.8	95 Amp	Each	13429.0
8.14.1.9	140 Amp	Each	21906.0
8.14.1.10	185 Amp	Each	24680.0
8.14.1.11	250 Amp	Each	30614.0
8.14.1.12	300 Amp	Each	38637.0
8.14.1.13	400 Amp	Each	48984.0
8.14.1.14	550 Amp	Each	72214.0
8.14.1.15	630 Amp	Each	109755.0
<b>8.14.2</b>	<b>4 pole Power contactors with following AC 1 Rating</b>		
8.14.2.1	16 Amp.	Each	1134.0
8.14.2.2	25/32 Amp.	Each	1188.0
8.14.2.3	40 Amp	Each	1700.0
8.14.2.4	50 Amp	Each	2135.0
8.14.2.5	63 Amp	Each	4045.0
8.14.2.6	100 Amp	Each	7849.0
8.14.2.7	160 Amp	Each	14656.0
8.14.2.8	200 Amp	Each	19935.0
8.14.2.9	250 Amp	Each	20752.0

Code No.	Description	Unit	Complete Rate
8.14.2.10	325 Amp	Each	37908.0
8.14.2.11	400 Amp	Each	47811.0
8.14.2.12	500 Amp	Each	58857.0
8.14.2.13	600 Amp	Each	64027.0
8.14.2.14	700 Amp	Each	81130.0
8.14.2.15	800 Amp	Each	105899.0
8.15	Providing & Fixing of 440 Volt 3 pole capacitor (AC 6 B ) duty contactor with 3 no. early make and post break auxiliary contacts in series with quick discharge damping resistors/ reactors to limit the inrush current as per PWD specification for electrical Works, IS/IEC 60947-4-1 : 2000, insulation voltage 1000V, impulse withstand voltage 8 KV,Din rail mounting type including making connections, testing etc. as required. suitable for following capacity capacitor bank. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.15.1	up to 6 KVAR	Each	1813.0
8.15.2	8.5 KVAR	Each	2127.0
8.15.3	10 KVAR	Each	2277.0
8.15.4	12.5 KVAR	Each	2304.0
8.15.5	15.0 KVAR	Each	3075.0
8.15.6	20.0 KVAR	Each	3518.0
8.15.7	25.0 KVAR	Each	3764.0
8.15.8	30.0 KVAR	Each	5993.0
8.15.9	40.0 KVAR	Each	10535.0
8.15.10	50.0 KVAR	Each	10787.0
8.15.11	60.0 KVAR	Each	12547.0
8.15.12	75.0 KVAR	Each	14047.0
8.15.13	85 KVAR	Each	15909.0
8.15.14	100 KVAR	Each	17218.0
8.16	P & F of Auxiliary Contactor for AC control standard. 24 V Coil 110, 240 V, 415 V, 50 Hz conforming to IS:13947-4-1/IEC:60947-4-1 with required NO & NC combination including making connections, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1330.0
8.17	P & F of Front / Side mounting Add on Auxiliary Contact Block with required NO & NC combination including making connections, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	629.0
8.18	Providing & Fixing of thermal over load relay with built in single phase protection and having at least 1NO & 1NC contacts, manual /auto reset facility including making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.18.1	Up to 14 Amp	Each	1158.00
8.18.2	14 to 23 Amp	Each	1295.00

Code No.	Description	Unit	Complete Rate
8.18.3	20 to 33 Amp	Each	1840.00
8.18.4	24 to 40 Amp	Each	1977.00
8.18.5	36 to 60 Amp	Each	2931.00
8.18.6	45 to 75 Amp	Each	3341.00
8.18.7	66 to 110 Amp	Each	3750.00
8.19	P & F of 240 / 415 V Electronic ON - OFF Timer 3 -30 Sec / 12 - 120 Sec including making Connection etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1938.0
8.20	Providing & Fixing of mechanical / digital time switch having following day / week programme and minimum 100 hours reserve and AC1 rating of 16-20 amperes including making connection, programming conforming to IEC 60730-1 and 60730-2-7 etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.20.1	One day reserve (Analog type )	Each	4390.0
8.20.2	One day & week reserve (Analog type )	Each	4690.0
8.20.3	One day & week reserve (digital type )	Each	4100.0
8.21	Providing & Fixing of 110 - 240 V, AC, 1 ph. , 2 W Astronomical time switch with surge suppressor, memory card, Sunrise / Sunset selectable, software for programming including making connection, etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	5017.00
8.22	Providing & Fixing of IP51 direct or CT operated, 1x240 / 3x240 volts , 50 Hz static watt-hour meter (kwh) as per PWD specification for electrical Works, ISI marked (IS :13010-2002 ) having resolution 0.1 / 0.01 kwh , accuracy class 1 as per IS:13779, LED indicators for tamper operation ( Reverse &/or earth connection) , pulsating LED indicator for meterology , LCD Display, cover plate for body and terminal sealing , push button for all standard parameters, including making connection ,testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.22.1	up to 30 ampere single phase meter	Each	1700.0
8.22.2	10 A to 60 ampere Single phase meter	Each	1836.0
8.22.3	3ph, 4W KWh CT Operated Base mounting 240 V, /5A	Each	5334.0
8.22.4	3ph, 4W KWh Direct Base mounting 240 V 10-40 /5-30 Amp	Each	4638.0
8.22.5	3ph, 4W KWh Direct Base mounting 240 V 10-60 Amp	Each	5647.0
8.22.6	3ph, 4W Trivector Meter,240 V(L-N) 5A	Each	21600.0

Code No.	Description	Unit	Complete Rate
8.23	P & F of Automatic Transfer Switch (ATS) confirming to IEC60947-6-1, Utilization category AC-33B in Existing panel for automatic on load transfer between two source power supply of 415V through Solenoid/Motorised mechanism and integrated with three positions realize fast transfer within 100 ms. ATS shall have three positions (S1-OFF-S2) , Manual / Auto Override feature, The two sources can be isolated in the off position with a padlock. capability to expand with RS 485 communication module, which can ensure real-time transmission of communication data. ATS shall have automatic generator start & stop control function; Auxillary contacts to indicate mechanical positions. Minimum Electrical operations 6000, of following Current ratings, including making connections etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.23.1	63 Amps	Each	37750.00
8.23.2	125 Amps	Each	71332.00
8.23.3	160 Amps	Each	73293.00
8.23.4	200 Amps	Each	83667.00
8.23.5	250 Amps	Each	105896.00
8.23.6	315 Amps	Each	112759.00
8.23.7	400 Amps	Each	128055.00
8.23.8	630 Amps	Each	156882.00
8.23.9	800 Amps	Each	192835.00
8.24	P & F Earth leakage relay for continuous surveillance of the earth leakage current of Rating 240 VAC at 50/60 Hz, Overload : x2 continuously, x10 for 3 secs as per BS6253, Voltage Tolerance : : - 25% to +10% Operating temp.: : -10 C to +70 C, Setting of trip point : : 0.030, 0.10, 0.30, 0.50, 1.0 ,3.0 ,5.0, 10.0,20.0 & 30.0 ( User Selectable) with Alarm Relay Output, Trip Relay Output etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
8.24.1	ELR with 35mm CBCT		2172.00
8.24.2	ELR with 70mm CBCT		2389.00
8.24.3	ELR with 120mm CBCT		2656.00
8.24.4	ELR with 210mm CBCT		3664.00
8.25	P & F of Direct on line (DOL) / Star - Delta Starter as per IEC <b>type-2 Co-ordination chart</b> of OEM in Existing Panel with circuit breaker having inbuilt overload protection or separate thermal Overload relay , Short circuit, phase loss protection, suitable Contactors, including wiring between switchgears, Indicating lamps for R,Y,B,ON,OFF, Push button for ON, OFF, Volt meter, Ammeter, selector switch for local/remote, auto/manual/OFF operation. Cast resin CT's, provision for potential free contacts making connection, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>8.25.1</b>	<b>Direct on line (DOL) Starter with following Motor rating</b>		
8.25.1.1	Motor rating 0.55 KW	Set	9990.00
8.25.1.2	Motor rating 0.75 KW	Set	11262.00
8.25.1.3	Motor rating 1.5 KW	Set	11499.00
8.25.1.4	Motor rating 2.2 KW	Set	11533.00
8.25.1.5	Motor rating 4.0 KW	Set	12288.00
8.25.1.6	Motor rating 5.5 KW	Set	12757.00

Code No.	Description	Unit	Complete Rate
8.25.1.7	Motor rating 7.5 KW	Set	13075.00
8.25.1.8	Motor rating 9.0 KW	Set	16192.00
8.25.1.9	Motor rating 11.0 KW	Set	16305.00
8.25.1.10	Motor rating 15.0 KW	Set	24383.00
8.25.1.11	Motor rating 18.5 KW	Set	27500.00
8.25.1.12	Motor rating 22.0 KW	Set	30363.00
8.25.1.13	Motor rating 30.0 KW	Set	37668.00
8.25.1.14	Motor rating 37.0 KW	Set	44560.00
8.25.1.15	Motor rating 45.0 KW	Set	46033.00
8.25.1.16	Motor rating 55.0 KW	Set	49920.00
8.25.1.17	Motor rating 75.0 KW	Set	69634.00
8.25.1.18	Motor rating 90.0 KW	Set	77829.00
8.25.1.19	Motor rating 110.0 KW	Set	92373.00
<b>8.25.2</b>	<b>Star - Delta Starter with following Motor rating</b>		
8.25.2.1	Motor rating 4.0 KW	Set	17785.00
8.25.2.2	Motor rating 5.5 KW	Set	18427.00
8.25.2.3	Motor rating 7.5 KW	Set	18796.00
8.25.2.4	Motor rating 9.0 KW	Set	24116.00
8.25.2.5	Motor rating 11.0 KW	Set	24813.00
8.25.2.6	Motor rating 15.0 KW	Set	35864.00
8.25.2.7	Motor rating 18.5 KW	Set	44893.00
8.25.2.8	Motor rating 22.0 KW	Set	46824.00
8.25.2.9	Motor rating 30.0 KW	Set	54663.00
8.25.2.10	Motor rating 37.0 KW	Set	71611.00
8.25.2.11	Motor rating 45.0 KW	Set	77037.00
8.25.2.12	Motor rating 55.0 KW	Set	85874.00
8.25.2.13	Motor rating 75.0 KW	Set	91754.00
8.25.2.14	Motor rating 90.0 KW	Set	123832.00
8.25.2.15	Motor rating 110.0 KW	Set	157054.00

8.26 SITC of IP-42 and general construction confirming to IEC 61439-1&2. type tested assembly (TTA) wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel as specifications and Other parameters required as per point (a) ,(b), (c),(d), (e), (f), (g), (h) as below:-

(a) Panel having short circuit withstand capacity of minimum of 50 kA for 1s (Icw rating) at 415 V, 50 HZ AC supply, Rated Impulse withstand voltage (Uimp) of 12kV for withstanding against transient Overvoltages, mechanical impact level of IK10 level and internal arc for 50kA for 0.3 second with aluminum busbar and fully type tested at an Independent Laboratory, Type test certificate has to be submitted for all rating of LV Switchgear to be used in Panel.

(b) All four Horizontal Busbars shall be in same compartment. Certified design of switchboards shall be proven design from OEM (Switchgear Manufacturer). OEM name should be mentioned on top of each column of switchboard. Also, OEM Partnership Certificate shall be furnished by Panel builder. Panel shall be fabricated with a double door arrangement. Front Door shall be fitted with transparent Glass to allow maintenance staff to visually access device status, meter readings, indicating lamp status without opening the door.

Code No.	Description	Unit	Complete Rate
	<p>© Panels and cubicles shall be fabricated with CRCA Sheet Steel of thickness, same as as per OEM Design. Sheet Steel having vibration free structure chemically treated with nine tank process before painting for surface treatment and powder coated, with suitable electrolytic grade high conductivity Aluminium busbar extensible type, busbar supports, ( Cost of Bus bar / Flexible wire for Interconnection between Main busbar and Switchgear is to be Paid Extra )</p> <p><b>(d)</b>Wiring between components within switchgear and Incoming / outgoing cable shall be done through the terminal block only. Direct connection shall not be permitted. Each terminal block shall be one piece moulded, barrier type, 650 volt grade, complete with washers, heads, studs with two nuts and identification strips and shall have adequate continuous current rating. For tap-offs, adjacent terminals with shorting strips shall be used. 10% Spare terminal blocks shall be provided. Wire identification on marking strip shall correspond to the designation of the wiring diagrams. All wire terminals on the equipment shall also be marked with designation corresponding to those of the wiring diagram.</p> <p><b>(e)</b>All wiring shall be enclosed in plastic channels and neatly bunched and closed in metering chamber, Wiring between terminals of various devices shall be 'point to point' (no wire splitting or tee connections) with wires neatly trucked along the back of the panels, adequately supported to prevent sagging.</p> <p><b>(f)</b>Floor mounted panel shall be mounted on Base frame of ISMC channel size 100 x 50 x 5 mm ( to be paid Extra )</p> <p><b>(g)</b> Tests: The insulation resistance (with 1000 V Megger) and High voltage Power frequency test (by applying a voltage of 2.5KV for one minute) shall be measured between phases, between phase and neutral and between phase and earth. both before and after high voltage power frequency test. The insulation resistance shall not be less than three megaohm. CT Secondary current injection test and Heat run test(type test) shall also be carried out.</p> <p><b>(h)</b> only outer surface area on all sides shall be measured &amp; panel to be fabricated only from Switchgear OEM approved fabricators only. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>	Sqm	9864.00



## Chapter E 09

### Air circuit breakers & MCCB

Code No.	Description	Unit	Complete Rate
9.1	SITC of Draw out type 3/4 pole door interlock Air Circuit Breaker (ACB) as conforming to IS/IEC 60947 P - 2 :2003 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, Instantaneous , earth fault (LSIG) with separate LED indication for each type of fault shall confirm to EMI/ EMC test , LCD/LED display, last 10 trip history, provision of ZSI, Communication, Power metering module, Thermal memory , trip free mechanism , suitable for ambient 50 degree and utilization category B. In built electrical & mechanical anti pumping feature , 100% rated neutral . ACB shall have separate indication for service, test, isolation & maintenance position, Breaking capacity Icu = Ics = Icw ( 1 sec ) , U imp - 12 KV, break time not more than 25 ms. Provision for electrical & mechanical interlock between ACBs, Min.electrical operation 10000 upto 2000 A rating and 5,000 for 2500 A to 4000 A. including making connections, testing etc. as required. OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
<b>9.1.1</b>	<b>Microprocessor based release Draw out type (Manual spring charged) 3 Pole</b>		
9.1.1.1	630/800 A Rating , 50 kA	Each	136853.00
9.1.1.2	1000 A Rating , 50 kA	Each	146321.00
9.1.1.3	1250 A Rating ,50 kA	Each	161878.00
9.1.1.4	1600 A Rating ,50 kA	Each	177381.00
9.1.1.5	2000 A Rating ,50 kA	Each	218379.00
9.1.1.6	2500 A Rating ,50 kA	Each	261020.00
9.1.1.7	3200 A Rating ,65 kA	Each	333331.00
9.1.1.8	4000 A Rating ,65 kA	Each	422228.00
<b>9.1.2</b>	<b>Microprocessor based release Draw out type ( Motorised charging type ) 3Pole</b>		
9.1.2.1	630/800 A Rating , 50 kA	Each	166488.00
9.1.2.2	1000 A Rating , 50 kA	Each	175949.00
9.1.2.3	1250 A Rating ,50 kA	Each	186343.00
9.1.2.4	1600 A Rating ,50 kA	Each	208833.00
9.1.2.5	2000 A Rating ,50 kA	Each	253265.00
9.1.2.6	2500 A Rating ,50 kA	Each	289229.00
9.1.2.7	3200 A Rating ,65 kA	Each	364180.00
9.1.2.8	4000 A Rating ,65 kA	Each	429335.00
<b>9.1.3</b>	<b>Microprocessor based release Draw out type (Manual spring charged) 4 Pole</b>		
9.1.3.1	630/800 A Rating , 50 kA	Each	171863.00
9.1.3.2	1000 A Rating , 50 kA	Each	178861.00
9.1.3.3	1250 A Rating ,50 kA	Each	208960.00
9.1.3.4	1600 A Rating ,50 kA	Each	226734.00
9.1.3.5	2000 A Rating ,50 kA	Each	281011.00
9.1.3.6	2500 A Rating ,50 kA	Each	333351.00
9.1.3.7	3200 A Rating ,65 kA	Each	406058.00
9.1.3.8	4000 A Rating ,65 kA	Each	564113.00

Code No.	Description	Unit	Complete Rate
<b>9.1.4</b>	<b>Microprocessor based release Draw out type ( Motorised charging type ) 4 Pole</b>		
9.1.4.1	630/800 A Rating ,50 kA	Each	203823.00
9.1.4.2	1000 A Rating , 50 kA	Each	214095.00
9.1.4.3	1250 A Rating ,50 kA	Each	227825.00
9.1.4.4	1600 A Rating ,50 kA	Each	255522.00
9.1.4.5	2000 A Rating ,50 kA	Each	304023.00
9.1.4.6	2500 A Rating ,50 kA	Each	358982.00
9.1.4.7	3200 A Rating ,65 kA	Each	437943.00
9.1.4.8	4000 A Rating ,65 kA	Each	538469.00
9.2	Supply and fixing of following accessories for Air circuit breaker (ACB) compatible with MAIN ACB OEM as per PWD specification for electrical Works, conforming to IS/IEC 60947 P - 2 :2003 including making connection etc complete in all respect. OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
9.2.1	Mechanical Interlocking Kit using key & Lock	Each	9058.00
9.2.2	Closing Release	Each	12304.00
9.2.3	Shunt Trip Release	Each	2783.00
9.2.4	Under voltage Release	Each	4434.00
9.2.5	External Neutral CT cast resin	Each	6630.00
9.2.6	Microswitch for Indication	Each	2421.00
9.2.7	Operation Counter	Each	8150.00
9.2.8	Door Interlock	Each	3301.00
9.2.9	Auxiliary Contact 4 NO + 4 NC	Each	5504.00
9.2.10	Breaker Control Switch (TNC)	Each	1290.00
9.3	SITC of 3 /4 pole current limiting Moulded case circuit breaker (MCCB) made of flame retardent & heat resistant material having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings , conforming to IS/IEC 60947 P -2 :2003 with front face and centralised adjustable, trip free mechanism, true contact position indicator, line load interchangeability, designed for both horizontal & vertical mounting without any adverse effect on electrical performance, suitable for operation upto 55 degree and without derating upto 40 degree, pollution degree 3, having positive isolation capability, push (test) to trip, trip time less then 10 ms under s/c condition, <b>Breaking capacity Ics = 100% Icu</b> . U imp =8 KV, rated insulation voltage 690 V. provision for UVR , shunt trip , earth fault trip, door interlock, pad lock & rotary handle , including making connections etc. as required.OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
9.3.1	<b>3 pole MCCB With Thermal Magnetic release</b>		
9.3.1.1	up to 100 Amp , 10 kA, fixed O/L & fixed S/C setting	Each	1698.00
9.3.1.2	up to 100 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	5170.00

Code No.	Description	Unit	Complete Rate
9.3.1.3	125 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	6387.00
9.3.1.4	160 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	9961.00
9.3.1.5	200 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	13188.00
9.3.1.6	250 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	15326.00
9.3.1.7	250 Amp , 35 kA, adjustable O/L & adjustable S/C setting,	Each	16117.00
9.3.1.8	400 Amp , 35 kA, adjustable O/L & adjustable S/C setting,	Each	19732.00
9.3.1.9	630 Amp , 50 kA, adjustable O/L & adjustable S/C setting,	Each	28237.00
9.3.1.10	800 Amp , 50 kA, adjustable O/L & adjustable S/C setting,	Each	51440.00
9.3.2	<b>3 pole MCCB With Microprocessor based release with adjustable O/L &amp; S/C setting with Inbuilt Instantaneous and Ground fault Protection.</b>		
9.3.2.1	250 Amp , 25 kA	Each	28482.00
9.3.2.2	400 Amp , 35 kA	Each	33918.00
9.3.2.3	630 Amp , 50 kA	Each	37833.00
9.3.2.4	800 Amp , 50 kA	Each	63519.00
9.3.3	<b>4 pole MCCB With Thermal Magnetic release</b>		
9.3.3.1	up to 100 Amp , 10 kA, fixed O/L & fixed S/C setting	Each	2215.00
9.3.3.2	up to 100 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	7112.00
9.3.3.3	125 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	8391.00
9.3.3.4	160 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	11835.00
9.3.3.5	200 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	15348.00
9.3.3.6	250 Amp , 25 kA, adjustable O/L & adjustable S/C setting,	Each	17480.00
9.3.3.7	250 Amp , 35 kA, adjustable O/L & adjustable S/C setting,	Each	19792.00
9.3.3.8	400 Amp , 35 kA, adjustable O/L & adjustable S/C setting,	Each	23846.00
9.3.3.9	630 Amp , 50 kA, adjustable O/L & adjustable S/C setting,	Each	34513.00
9.3.3.10	800 Amp , 50 kA, adjustable O/L & adjustable S/C setting,	Each	39173.00
9.3.4	<b>4 pole MCCB With Microprocessor based release with adjustable O/L &amp; S/C setting with Inbuilt Instantaneous and Ground fault Protection.</b>		
9.3.4.1	Upto 160 Amp , 50 kA	Each	34818.00
9.3.4.2	250 Amp , 50 kA	Each	38201.00
9.3.4.3	400 Amp , 50 kA	Each	40781.00
9.3.4.4	630 Amp , 50 kA	Each	46531.00
9.3.4.5	800 Amp , 50 kA	Each	76151.00
9.4	Supply and fixing of following accessories for Moulded case circuit breaker (MCCB) compatible to main MCCB OEM as per PWD specification for electrical Works, conforming to IS/IEC 60947 P - 2 :2003 including making connection etc complete in all respect. OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
9.4.1	Shunt Trip Release	Each	1424.00
9.4.2	Under Voltage Release	Each	2673.00
9.4.3	Extended Rotary Handle	Each	2713.00

Code No.	Description	Unit	Complete Rate
9.4.4	Direct Rotary Handle	Each	1651.00
9.4.5	Mechanical Interlocking kit	Each	6943.00
9.4.6	Motor mechanism for 250A MCCB (240V, 50Hz)	Each	22292.00
9.4.7	Motor mechanism for 400A MCCB (240V, 50Hz)	Each	27447.00
9.4.8	Motor mechanism for 630A MCCB (240V, 50Hz)	Each	41221.00
9.4.9	Auxiliary contact	Each	1345.00
9.4.10	Trip Alarm contact	Each	1345.00
9.4.11	Auxiliary + Trip alarm contact	Each	1634.00
9.4.12	Spreaders upto 125A, 3 Pole MCCB	set	389.00
9.4.13	Spreaders for 160A, 3 Pole MCCB	set	1162.00
9.4.14	Spreaders for 160A, 4 Pole MCCB	set	1507.00
9.4.15	Spreaders for 250A, 3 Pole MCCB	set	1196.00
9.4.16	Spreaders for 250A, 4 Pole MCCB	set	1541.00
9.4.17	Spreaders for 400A, 3Pole MCCB	set	2204.00
9.4.18	Spreaders for 400A, 4Pole MCCB	set	3101.00
9.4.19	Spreaders for 630A, 3Pole MCCB	set	2594.00
9.4.20	Spreaders for 630A, 4Pole MCCB	Set	3427.00
9.4.21	Spreaders for 800A, 3Pole MCCB	Set	5376.00
9.4.22	Spreaders for 800A, 4Pole MCCB	Set	6767.00
9.4.23	Phase Barriers up to 630A, 3/4Pole MCCB	set	1106.00
9.4.24	External Neutral CT with Adaptor Kit	set	4596.00
9.4.25	Current Metering Module	set	19125.00
9.5	Providing & Fixing of IK08 and IP-30 Recessed/surface mounting heavy duty Enclosure suitable for mounting 3 / 4 pole MCCB, Inbuilt neutral link made out from Galvanized steel / CRCA sheet not less than 1.2 mm thick conforming to IS-8623-1 & 3 / IEC 61439- 1 & 3. powder painted complete with din rail making internal DB terminations, detachable gland plate, including making connections, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
9.5.1	Suitable to accommodate up to 70 sqmm 3.5 core Al arm. Cable	Each	1830.00
9.5.2	Suitable to accommodate above 70 sqmm 3.5 core Al arm. Cable to 185 Sqm , 3.5 core Al Arm. Cable	Each	3951.00
9.6	SITC of IP-43 surface mounting heavy duty modular Sub main Distribution board (SMDDB) fabricated by switchgear OEM having short circuit withstand current 35 kA (upto 400 amp.Incomer ) and 50 kA for 630 amp. Incomer with suitable bottom cabling box, 4 no. corner boxes, 2 no. side cabling boxes, metering Extension box with provision of incomer suitable for 3 pole MCCB and 3 pole MCCB as outgoing ,made out from Galvanized steel / CRCA sheet not less than 1.6 mm thick conforming to IEC 61439 Part 1 & 2. , U imp 8 KV, form of separation 2b, powder painted complete with insulated suitable rating tinned copper bus bar, neutral bars with shrouds, earth bar , din bar, making internal DB terminations with copper lugs, detachable gland plate, including making connections, testing etc. as required. (Without MCCB, ammeter, voltmeter, selector switch , Indicating lamp) OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		

Code No.	Description	Unit	Complete Rate
9.6.1	SMDB with 250 Amp. Incoming and 4 no. 100 Amps Outgoing	Set	62558.00
9.6.2	SMDB with 250 Amp. Incoming and 8 no. 100 Amps Outgoing	Set	72351.00
9.6.3	SMDB with 250 Amp. Incoming and 12 no. 100 Amps Outgoing	Set	86012.00
9.6.4	SMDB with 400 Amp. Incoming and 4 no. 100 Amps Outgoing	Set	72482.00
9.6.5	SMDB with 400 Amp. Incoming and 8 no. 100 Amps Outgoing	Set	80007.00
9.6.6	SMDB with 400 Amp. Incoming and 12 no. 100 Amps Outgoing	Set	94061.00
9.6.7	SMDB with 630 Amp. Incoming and 4 no. 100 Amps Outgoing	Set	103968.00
9.6.8	SMDB with 630 Amp. Incoming and 8 no. 100 Amps Outgoing	Set	108948.00
9.6.9	SMDB with 630 Amp. Incoming and 12 no. 100 Amps Outgoing	Set	135558.00
9.6.10	SMDB with 630 Amp. Incoming and 6 no. 100 Amps + 2 No. 250 amp. Outgoing	Set	112229.00
9.6.11	SMDB with 630 Amp. Incoming and 10 no. 100 Amps + 2 No. 250 amp. Outgoing	Set	137142.00

## Chapter E - 10

### Switch Fuse Unit & Change over switch

Code No.	Description	Unit	Complete Rate
10.1	Providing & Fixing of ISO certified company made TP&N 415 V side handle operated double break fuse switch unit in sheet steel enclosure as per PWD specification for electrical Works conforming to IS/IEC 60947-3 : 1999 (W/O HBC fuses) including making connections with suitable lugs, testing etc. as required. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.1.1	63 A rating	Each	6610.00
10.1.2	100 A rating	Each	8974.00
10.1.3	200 A rating	Each	15278.00
10.1.4	300/320 A rating	Each	17460.00
10.1.5	400 A rating	Each	24949.00
10.1.6	500 A rating	Each	34973.00
10.2	Providing & Fixing of ISO certified company made TP&N 415 V AC-23A front handle operated switch disconnecter fuse unit, cubical type, with metallic enclosure, as per PWD specification for electrical Works conforming to IS/IEC 60947-3 : 1999 with HBC fuses including making connections with lugs, testing etc as required. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.2.1	32 A rating	Each	3841.00
10.2.2	63 A rating	Each	4537.00
10.2.3	100/125 A rating	Each	7344.00
10.2.4	160 A rating	Each	9320.00
10.2.5	200 A rating	Each	12707.00
10.2.6	250 A rating	Each	14596.00
10.2.7	300/320 A rating	Each	17038.00
10.2.8	400 A rating	Each	19440.00
10.2.9	630 A rating	Each	30849.00
10.3	Providing & Fixing of ISO certified company made TP&N 415 V AC-23A front handle operated switch disconnecter fuse unit, cubical type, without metallic enclosure (For Panel Mounting), as per PWD specification for electrical Works conforming to IS/IEC 60947-3 : 1999 in existing panel With HBC fuses including making connections with lugs, testing etc as required. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.3.1	32 A rating	Each	1970.00
10.3.2	63 A rating	Each	2717.00
10.3.3	100/125 A rating	Each	5611.00

Code No.	Description	Unit	Complete Rate
10.3.4	160 A rating	Each	7743.00
10.3.5	200 A rating	Each	9711.00
10.3.6	250 A rating	Each	11304.00
10.3.7	300/320 A rating	Each	13798.00
10.3.8	400 A rating	Each	16990.00
10.3.9	630 A rating	Each	26682.00
10.4	Providing & Fixing of ISO certified company made bakelite fuse fitting for HBC fuse links (front/bus bar connections) Conforms To IS 13703/IEC 269 w/o HBC fuses as per PWD specification for electrical Works on existing board including making connections with lugs, testing etc. as required. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.4.1	20 A rating	Each	170.00
10.4.2	32 A rating	Each	190.00
10.4.3	63 A rating	Each	312.00
10.4.4	100/125 A rating	Each	878.00
10.5	Providing & Fixing of ISO certified company made 240/415 V porcelain kitkat fuse (/HBC type) as per PWD specification for electrical Works conforming to IS:2086,1983 on existing board/ sheet including making connections with lugs, testing etc. as required . Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.5.1	16 A ,240 V	Each	88.00
10.5.2	16 A ,415 V	Each	133.00
10.5.3	32 A ,240 V	Each	135.00
10.5.4	32 A ,415 V	Each	164.00
10.5.5	63 A , 415 V	Each	250.00
10.5.6	100 A ,415 V	Each	486.00
10.5.7	200 A , 415 V	Each	893.00
10.5.8	320 A , 415 V	Each	1363.00
10.6	Providing & Fixing of ISO certified company made bolted type/ Din type HBC (High breaking capacity) fuse links of 80 KA breaking capacity,as per PWD specification for electrical Works conforming to IS:13703 in the existing fuse base, fuse switch unit etc. of the following type and rating. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.6.1	<b>Cylindrical Fuse Link</b>		
10.6.1.1	2 A to 32 A	Each	90.00
10.6.1.2	40 A	Each	99.00
10.6.1.3	50 A	Each	210.00
10.6.1.4	63A	Each	252.00
10.6.2	<b>Offset tag type</b>		

Code No.	Description	Unit	Complete Rate
10.6.2.1	2 A to 20 A	Each	44.00
10.6.2.2	25 A to 32 A	Each	75.00
10.6.2.3	35 A to 63 A	Each	105.00
10.6.2.4	80 A to 125 A	Each	368.00
10.6.3	<b>Central tag type</b>		
10.6.3.1	80 A to 125 A	Each	293.00
10.6.3.2	160 A to 200 A	Each	333.00
10.6.3.3	250 A to 315 A	Each	487.00
10.6.3.4	400 A to 500 A	Each	1325.00
10.6.3.5	630 A	Each	1448.00
10.6.4	<b>Din (knife type) type</b>		
10.6.4.1	63 A to 125 A Size 000	Each	357.00
10.6.4.2	63 A to 160 A Size 00	Each	388.00
10.6.4.3	80 A to 200 A Size 0	Each	534.00
10.6.4.4	125 A to 315 A Size 1	Each	639.00
10.6.4.5	200 A to 400 A Size 2	Each	843.00
10.6.4.6	315A to 800 A Size 3	Each	2831.00
10.7	Providing & Fixing of ISO certified company made on load change over switch, front handle operated, four pole 415 V as per PWD specification for electrical Works conforming to IS/IEC 60947-3 : 1999 including connections , testing etc. as required .in the following rating. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.7.1	<b>Open execution type</b>		
10.7.1.1	63 A	Each	4038.00
10.7.1.2	125 A	Each	7149.00
10.7.1.3	160 A	Each	8750.00
10.7.1.4	200 A	Each	11691.00
10.7.1.5	250 A	Each	15975.00
10.7.1.6	320 A	Each	17693.00
10.7.1.7	400 A	Each	26014.00
10.7.1.8	630 A	Each	33366.00
10.7.1.9	800 A	Each	43651.00
10.7.1.10	1000 A	Each	51154.00
10.7.2	<b>With sheet steel enclosure made out from CRCA sheet door 1.2mm &amp; body 1.6mm thick, powder quoted, door locking system allow opening of door in OFF position only with 2 nos external earthing points.</b>		
10.7.2.1	63 A	Each	5321.00
10.7.2.2	125 A	Each	9124.00
10.7.2.3	160 A	Each	11293.00
10.7.2.4	200 A	Each	13064.00
10.7.2.5	250 A	Each	17448.00
10.7.2.6	320 A	Each	21055.00
10.7.2.7	400 A	Each	29271.00
10.7.2.8	630 A	Each	34861.00
10.7.2.9	800 A	Each	49836.00
10.7.2.10	1000 A	Each	57567.00



Code No.	Description	Unit	Complete Rate
10.8	Providing & Fixing of ISO certified company made off load change over switch four pole/two pole, 230/ 415 V ,side handle operated conforming to IS:13947 P-III in sheet steel enclosure complete with connections with lugs, testing etc. as required in the following rating: All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.8.1	32 A, Double pole	Each	1518.00
10.8.2	32 A, Four pole	Each	2593.00
10.8.3	63 A Four pole	Each	5081.00
10.8.4	100 A Four pole	Each	9806.00
10.8.5	200 A Four pole	Each	14789.00
10.8.6	315 A Four pole	Each	18995.00
10.8.7	400 A Four pole	Each	21870.00
10.9	Providing & Fixing of ISO certified company made Four Pole By pass Change Over Switch conforming to IS:13947(Part 3) : IEC:60947-3-1 and IEC:60947-6-1, Open execution type in the following ratings. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.9.1	63 A	Each	13430.00
10.9.2	100 A	Each	15388.00
10.9.3	200 A	Each	21040.00
10.9.4	320 A	Each	31470.00
10.9.5	400 A	Each	46810.00
10.9.6	630 A	Each	53363.00
10.9.7	800 A	Each	67925.00
10.9.8	1000 A	Each	121779.00
10.10	Providing & Fixing of ISO certified company made bus bar chamber housed in sheet metal box as per PWD specification for electrical Works Confirming to IEC-60439/IS-8623 & IEC-60529/IS-2147 made out from 1.6 mm thick powder coated CRCA sheet,degree of protection IP-31, front openable bus bar made out of aluminium or wrought aluminium alloy suitable for 100 amp. Capacity , bus bar fixed on porcelain/DMC insulators at approved spacing including making connections etc. as required. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.10.1	300 mm long , 2 strip	Each	814.0
10.10.2	300 mm long , 4 strip	Each	1012.0
10.10.3	450 mm long , 2 strip	Each	1154.0
10.10.4	450 mm long , 4 strip	Each	1720.0
10.10.5	600 mm long ,2 strip	Each	1495.0
10.10.6	600 mm long , 4 strip	Each	1972.0
10.10.7	900 mm long , 2 strip	Each	1971.0
10.10.8	900 mm long , 4 strip	Each	2789.0

Code No.	Description	Unit	Complete Rate
10.11	Providing & Fixing of ISO certified company made bus bar chamber housed in sheet metal box as per PWD specification for electrical Works Confirming to IEC-60439/ IS-8623 & IEC-60529/ IS-2147 made out from 1.6 mm thick powder coated CRCA sheet,degree of protection IP-31 front openable bus bar made out of aluminium or wrought aluminium alloy suitable for 200 amp. Capacity , bus bar fixed on porcelain/DMC insulators at approved spacing including making connections etc. as required. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.11.1	300 mm long , 4 strip	Each	1701.0
10.11.2	450 mm long , 4 strip	Each	2654.0
10.11.3	600 mm long , 4 strip	Each	2825.0
10.11.4	900 mm long , 4 strip	Each	3812.0
10.12	Providing & Fixing of ISO certified company made bus bar chamber housed in sheet metal box as per PWD specification for electrical Works Confirming to IEC-60439/IS-8623 & IEC-60529/IS-2147 made out from 1.6 mm thick powder coated CRCA sheet,degree of protection IP-31, front openable bus bar made out of <b>Copper</b> suitable for 100 amp. Capacity , bus bar fixed on porcelain/DMC insulators at approved spacing including making connections etc. as required. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.12.1	300 mm long , 2 strip	Each	2110.0
10.12.2	300 mm long , 4 strip	Each	4292.0
10.12.3	450 mm long , 2 strip	Each	2586.0
10.12.4	450 mm long , 4 strip	Each	5041.0
10.12.5	600 mm long ,2 strip	Each	3405.0
10.12.6	600 mm long , 4 strip	Each	6542.0
10.12.7	900 mm long , 2 strip	Each	4699.0
10.12.8	900 mm long , 4 strip	Each	8518.0
10.13	Providing & Fixing of ISO certified company made bus bar chamber housed in sheet metal box as per PWD specification for electrical Works Confirming to IEC-60439/IS-8623 & IEC-60529/IS-2147 made out from 1.6 mm thick powder coated CRCA sheet,degree of protection IP-31, front openable bus bar made out of <b>Copper</b> suitable for 200 amp. Capacity , bus bar fixed on porcelain/DMC insulators at approved spacing including making connections etc. as required. Appropriate type test certificate / OEM test report shall be submitted . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
10.13.1	300 mm long , 4 strip	Each	4974.0
10.13.2	450 mm long , 4 strip	Each	5723.0
10.13.3	600 mm long , 4 strip	Each	8178.0
10.13.4	900 mm long , 4 strip	Each	11246

## Chapter E - 11

### LT Cables

Code No.	Description	Unit	Complete Rate
11.1	Providing & Laying P.V.C. / XLPE insulated & P.V.C. sheathed Un-Armoured Aluminium cable confirming to IS:1554 P-I / IS :7098 P - I of 1.1 KV with H4-Grade electrolytic aluminium conductor confirming to IS 8130 of purity >99.6 %, Inner / outer sheath confirming to IS:5831 in existing RCC / Hume / Stoneware / PVC pipe/ open duct/cable trench / Cable tray (with cable tie) including testing etc. as required of following size. OEM must have it's own in house NABL accredited Laboratory for testing procedure as per IS:10810. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
<b>11.1.1</b>	<b>4.0 Sq. mm</b>		
11.1.1.1	2 core	Mtr	61.00
11.1.1.2	3 core	Mtr	76.00
11.1.1.3	4 core	Mtr	87.00
<b>11.1.2</b>	<b>6.0 Sq. mm</b>		
11.1.2.1	2 core	Mtr	79.00
11.1.2.2	3 core	Mtr	98.00
11.1.2.3	4 core	Mtr	114.00
<b>11.1.3</b>	<b>10.0 Sq. mm</b>		
11.1.3.1	2 core	Mtr	111.00
11.1.3.2	3 core	Mtr	132.00
11.1.3.3	4 core	Mtr	146.00
<b>11.1.4</b>	<b>16.0 Sq. mm</b>		
11.1.4.1	2 core	Mtr	120.00
11.1.4.2	3 core	Mtr	147.00
11.1.4.3	4 core	Mtr	179.00
<b>11.1.5</b>	<b>25.0 Sq. mm</b>		
11.1.5.1	2 core	Mtr	154.00
11.1.5.2	3 core	Mtr	207.00
11.1.5.3	3.5 core	Mtr	256.00
<b>11.1.6</b>	<b>35.0 Sq. mm</b>		
11.1.6.1	2 core	Mtr	210.00
11.1.6.2	3 core	Mtr	281.00
11.1.6.3	3.5 core	Mtr	312.00
<b>11.1.7</b>	<b>50.0 Sq. mm</b>		
11.1.7.1	2 core	Mtr	255.00
11.1.7.2	3 core	Mtr	354.00
11.1.7.3	3.5 core	Mtr	417.00
<b>11.1.8</b>	<b>70.0 Sq. mm</b>		
11.1.8.1	2 core	Mtr	352.00
11.1.8.2	3 core	Mtr	501.00
11.1.8.3	3.5 core	Mtr	567.00
<b>11.1.9</b>	<b>95.0 Sq. mm</b>		
11.1.9.1	1 core	Mtr	251.00
11.1.9.2	3.5 core	Mtr	714.00
<b>11.1.10</b>	<b>120.0 Sq. mm</b>		
11.1.10.1	1 core	Mtr	306.00
11.1.10.2	3.5 core	Mtr	904.00
<b>11.1.11</b>	<b>150.0 Sq. mm</b>		

Code No.	Description	Unit	Complete Rate
11.1.11.1	1 core	Mtr	363.00
11.1.11.2	3.5 core	Mtr	1061.00
<b>11.1.12</b>	<b>185.0 Sq. mm</b>		
11.1.12.1	1 core	Mtr	445.00
11.1.12.2	3.5 core	Mtr	1327.00
<b>11.1.13</b>	<b>240.0 Sq. mm</b>		
11.1.13.1	1 core	Mtr	512.00
11.1.13.2	3.5 core	Mtr	1596.00
<b>11.1.14</b>	<b>300.0 Sq. mm</b>		
11.1.14.1	1 core	Mtr	627.00
11.1.14.2	3.5 core	Mtr	2026.00
<b>11.1.15</b>	<b>400.0 Sq. mm</b>		
11.1.15.1	1 core	Mtr	788.00
11.1.15.2	3.5 core	Mtr	2568.00
<b>11.1.16</b>	<b>500.0 Sq. mm</b>		
11.1.16.1	1 core	Mtr	1020.00
11.1.16.2	3.5 core	Mtr	3304.00
<b>11.1.17</b>	<b>630.0 Sq. mm</b>		
11.1.17.1	1 core	Mtr	1263.00
11.1.17.2	3.5 core	Mtr	4505.00
<b>11.1.18</b>	<b>800.0 Sq. mm</b>		
11.1.18.1	1 core	Mtr	1635.00
<b>11.1.19</b>	<b>1000.0 Sq. mm</b>		
11.1.19.1	1 core	Mtr	2079.00
<b>11.2</b>	Providing & Laying P.V.C. / XLPE insulated & P.V.C. sheathed Armoured Aluminium cable confirming to IS:1554 P-I / IS :7098 P - I of 1.1 KV with H4-Grade electrolytic aluminium conductor confirming to IS 8130 of purity >99.6 %, round / flat strip armouring of cables, Inner / outer sheath confirming to IS:5831 in existing RCC / Hume / Stoneware / PVC pipe/ open duct/cable trench / Cable tray(with cable tie) including testing etc. as required of following size. OEM must have it's own in house NABL accredited Laboratory for testing procedure as per IS:10810.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
<b>11.2.1</b>	<b>4.0 Sq. mm</b>		
11.2.1.1	2 core	Mtr	109.00
11.2.1.2	3 core	Mtr	123.00
11.2.1.3	4 core	Mtr	139.00
<b>11.2.2</b>	<b>6.0 Sq. mm</b>		
11.2.2.1	2 core	Mtr	128.00
11.2.2.2	3 core	Mtr	146.00
11.2.2.3	4 core	Mtr	166.00
<b>11.2.3</b>	<b>10.0 Sq. mm</b>		
11.2.3.1	2 core	Mtr	152.00
11.2.3.2	3 core	Mtr	179.00
11.2.3.3	4 core	Mtr	192.00
<b>11.2.4</b>	<b>16.0 Sq. mm</b>		
11.2.4.1	2 core	Mtr	171.00
11.2.4.2	3 core	Mtr	193.00
11.2.4.3	4 core	Mtr	232.00
<b>11.2.5</b>	<b>25.0 Sq. mm</b>		
11.2.5.1	2 core	Mtr	200.00
11.2.5.2	3 core	Mtr	244.00

Code No.	Description	Unit	Complete Rate
11.2.5.3	3.5 core	Mtr	285.00
<b>11.2.6</b>	<b>35.0 Sq. mm</b>		
11.2.6.1	2 core	Mtr	246.00
11.2.6.2	3 core	Mtr	318.00
11.2.6.3	3.5 core	Mtr	347.00
<b>11.2.7</b>	<b>50.0 Sq. mm</b>		
11.2.7.1	2 core	Mtr	300.00
11.2.7.2	3 core	Mtr	416.00
11.2.7.3	3.5 core	Mtr	457.00
<b>11.2.8</b>	<b>70.0 Sq. mm</b>		
11.2.8.1	1 core	Mtr	<b>255.00</b>
11.2.8.2	2 core	Mtr	398.00
11.2.8.3	3 core	Mtr	544.00
11.2.8.4	3.5 core	Mtr	610.00
<b>11.2.9</b>	<b>95.0 Sq. mm</b>		
11.2.9.1	1 core	Mtr	287.00
11.2.9.2	3.5 core	Mtr	765.00
<b>11.2.10</b>	<b>120.0 Sq. mm</b>		
11.2.10.1	1 core	Mtr	353.00
11.2.10.2	3.5 core	Mtr	945.00
<b>11.2.11</b>	<b>150.0 Sq. mm</b>		
11.2.11.1	1 core	Mtr	411.00
11.2.11.2	3.5 core	Mtr	1096.00
<b>11.2.12</b>	<b>185.0 Sq. mm</b>		
11.2.12.1	1 core	Mtr	496.00
11.2.12.2	3.5 core	Mtr	1415.00
<b>11.2.13</b>	<b>240.0 Sq. mm</b>		
11.2.13.1	1 core	Mtr	616.00
11.2.13.2	3.5 core	Mtr	1733.00
<b>11.2.14</b>	<b>300.0 Sq. mm</b>		
11.2.14.1	1 core	Mtr	746.00
11.2.14.2	3.5 core	Mtr	2112.00
<b>11.2.15</b>	<b>400.0 Sq. mm</b>		
11.2.15.1	1 core	Mtr	940.00
11.2.15.2	3.5 core	Mtr	2706.00
<b>11.2.16</b>	<b>500.0 Sq. mm</b>		
11.2.16.1	1 core	Mtr	1145.00
11.2.16.2	3.5 core	Mtr	3448.00
<b>11.2.17</b>	<b>630.0 Sq. mm</b>		
11.2.17.1	1 core	Mtr	1394.00
11.2.17.2	3.5 core	Mtr	4722.00
<b>11.2.18</b>	<b>800.0 Sq. mm</b>		
11.2.18.1	1 core	Mtr	1776.00
<b>11.2.19</b>	<b>1000.0 Sq. mm</b>		
11.2.19.1	1 core	Mtr	2222.00

Code No.	Description	Unit	Complete Rate
<b>11.3</b>	Providing & Laying P.V.C. / XLPE insulated & P.V.C. sheathed Un-armoured Copper cable confirming to IS:1554 P-I / IS :7098 P - I of 1.1 KV with electrolytic grade Copper made of copper rods confirming to IS 613-1964, of purity >99.7 %, Inner / outer sheath confirming to IS:5831 in existing RCC / Hume / Stoneware / PVC pipe/ open duct/cable trench / Cable tray (with cable tie) including testing etc. as required of following size. OEM must have it's own in house NABL accredited Laboratory for testing procedure as per IS:10810 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
<b>11.3.1</b>	<b>1.5 Sq. mm</b>		
11.3.1.1	2 core	Mtr	88.00
11.3.1.2	3 core	Mtr	109.00
11.3.1.3	4 core	Mtr	135.00
11.3.1.4	6 core	Mtr	184.00
11.3.1.5	8 core	Mtr	246.00
11.3.1.6	10 core	Mtr	302.00
11.3.1.7	12 core	Mtr	315.00
<b>11.3.2</b>	<b>2.5 Sq. mm</b>		
11.3.2.1	2 core	Mtr	120.00
11.3.2.2	3 core	Mtr	157.00
11.3.2.3	4 core	Mtr	201.00
11.3.2.4	6 core	Mtr	275.00
11.3.2.5	8 core	Mtr	374.00
11.3.2.6	10 core	Mtr	424.00
11.3.2.7	12 core	Mtr	518.00
<b>11.3.3</b>	<b>4.0 Sq. mm</b>		
11.3.3.1	2 core	Mtr	166.00
11.3.3.2	3 core	Mtr	227.00
11.3.3.3	4 core	Mtr	281.00
<b>11.3.4</b>	<b>6.0 Sq. mm</b>		
11.3.4.1	2 core	Mtr	232.00
11.3.4.2	3 core	Mtr	320.00
11.3.4.3	4 core	Mtr	404.00
<b>11.3.4</b>	<b>10.0 Sq. mm</b>		
11.3.5.1	2 core	Mtr	390.00
11.3.5.2	3 core	Mtr	531.00
11.3.5.3	4 core	Mtr	624.00
<b>11.3.5</b>	<b>16.0 Sq. mm</b>		
11.3.5.1	1 core	Mtr	292.00
11.3.5.2	2 core	Mtr	486.00
11.3.5.3	3 core	Mtr	763.00
11.3.5.4	4 core	Mtr	951.00
<b>11.3.6</b>	<b>25.0 Sq. mm</b>		
11.3.6.1	1 core	Mtr	433.00
11.3.6.2	2 core	Mtr	803.00
11.3.6.3	3 core	Mtr	1153.00
11.3.6.4	4 core	Mtr	1472.00

Code No.	Description	Unit	Complete Rate
<b>11.4</b>	Providing & Laying P.V.C. / XLPE insulated & P.V.C. sheathed Armoured Copper cable confirming to IS:1554 P-I / IS :7098 P - I of 1.1 KV with electrolytic grade Copper made of copper rods confirming to IS 613-1964, of purity >99.7 %, round / flat strip armouring, Inner / outer sheath confirming to IS:5831 in existing RCC / Hume / Stoneware / PVC pipe/ open duct/cable trench / Cable tray(with cable tie) including testing etc. as required of following size. OEM must have it's own in house NABL accredited Laboratory for testing procedure as per IS:10810 For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
<b>11.4.1</b>	<b>1.5 Sq. mm</b>		
11.4.1.1	2 core	Mtr	117.00
11.4.1.2	3 core	Mtr	142.00
11.4.1.3	4 core	Mtr	167.00
11.4.1.4	6 core	Mtr	223.00
11.4.1.5	8 core	Mtr	281.00
11.4.1.6	10 core	Mtr	336.00
11.4.1.7	12 core	Mtr	371.00
<b>11.4.2</b>	<b>2.5 Sq. mm</b>		
11.4.2.1	2 core	Mtr	155.00
11.4.2.2	3 core	Mtr	188.00
11.4.2.3	4 core	Mtr	231.00
11.4.2.4	6 core	Mtr	321.00
11.4.2.5	8 core	Mtr	413.00
11.4.2.6	10 core	Mtr	468.00
11.4.2.7	12 core	Mtr	545.00
<b>11.4.3</b>	<b>4.0 Sq. mm</b>		
11.4.3.1	2 core	Mtr	196.00
11.4.3.2	3 core	Mtr	254.00
11.4.3.3	4 core	Mtr	324.00
<b>11.4.4</b>	<b>6.0 Sq. mm</b>		
11.4.4.1	2 core	Mtr	263.00
11.4.4.2	3 core	Mtr	348.00
11.4.4.3	4 core	Mtr	463.00
<b>11.4.5</b>	<b>10.0 Sq. mm</b>		
11.4.5.1	2 core	Mtr	408.00
11.4.5.2	3 core	Mtr	551.00
11.4.5.3	4 core	Mtr	690.00
<b>11.4.6</b>	<b>16.0 Sq. mm</b>		
11.4.6.1	1 core	Mtr	348.00
11.4.6.2	2 core	Mtr	532.00
11.4.6.3	3 core	Mtr	798.00
11.4.6.4	4 core	Mtr	1021.00
<b>11.4.7</b>	<b>25.0 Sq. mm</b>		
11.4.7.1	1 core	Mtr	498.00
11.4.7.2	2 core	Mtr	834.00
11.4.7.3	3 core	Mtr	1227.00
11.4.7.4	4 core	Mtr	1572.00

Code No.	Description	Unit	Complete Rate
<b>11.4.8</b>	<b>35 Sq. mm</b>		
11.4.8.1	1 core	Mtr	668.00
11.4.8.2	2 core	Mtr	1154.00
11.4.8.3	3 core	Mtr	1651.00
11.4.8.4	4 core	Mtr	2251.00
<b>11.4.9</b>	<b>50 Sq. mm</b>		
11.4.9.1	1 core	Mtr	938.00
11.4.9.2	2 core	Mtr	1570.00
11.4.9.3	3 core	Mtr	2281.00
11.4.9.4	4 core	Mtr	3013.00
<b>11.5</b>	Add Extra for Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade direct in ground including excavation of trench of size 75 cm (Depth) x 35 cm(Width) , with procedure as per following points:- (a) Make a river sand bed of height 125 mm along the trench, (b) Lay the cable in the middle of the trench, (c) Provide river sand bed of height 125 mm on top of the cable, (d) Lay the protective Common burnt clay F.P.S. Bricks of Class designation 75 / Sand stone slabs of 50 mm thickness and 225 mm wide just above the sand bed vertically across the cable ( Approx. 9 no. Bricks per Mtr.), (e) Backfill the excavated soil leaving 300 mm from the Ground level, (f)Lay the Cable warning tape and again back-fill the remaining portion of the trench upto the ground level and compacting the earth	Mtr	185.00
<b>11.6</b>	Add Extra in Item no.11.5 if Excavation done in Hard Rock / CC road / TAR Road and making Good the same	Mtr	24.00
<b>11.7</b>	Add Extra for Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade direct in ground in the same trench in one tier horizontal formation including excavation of trench of size additional 20 cm in width, with procedure as per following points :- (a) Make a river sand bed of height 125 mm along the trench, (b) Lay another cable in middle of trench in such manner that spacing between another cable is 20 cm., (c) Provide river sand bed of height 125 mm on top of the cable. (d) Lay the protective Common burnt clay F.P.S. Bricks of Class designation 75 /Sand stone slabs of 50 mm thickness and 225 mm wide just above the sand bed vertically across the cable ( Approx. 9 no. Bricks per Mtr.), (e) Backfill the excavated soil leaving 300 mm from the Ground level, (f)Lay the Cable warning tape and again back-fill the remaining portion of the trench upto the ground level and compacting the earth	Mtr	127.00
<b>11.8</b>	Add Extra in Item no. 11.7 if Excavation done in Hard Rock / CC road / TAR Road and making Good the same	Mtr	14.00
<b>11.09</b>	Add Extra in item no. 11.1 to 11.4 for Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.		
11.09.1	Up to 35 Sq.mm fixed with 25 mm x 2 mm thick suitable length red oxide and enamel painted MS clamp and base, pvc rawl plug and screws of sufficient size with spacing 0.6 Mtr. Between Clamps.	Mtr	39.00



Code No.	Description	Unit	Complete Rate
11.09.2	Above 35 sq. mm and upto 95 sq. mm fixed with 40 mm x 3 mm thick suitable length red oxide and enamel painted MS clamp and base, pvc rawl plug and screws of sufficient size with spacing 0.6 Mtr. Between Clamps.	Mtr	67.00
11.09.3	Above 95 sq. mm and upto 185 sq. mm fixed with 40 mm x 4 mm thick suitable length red oxide and enamel painted MS clamp and base, pvc rawl plug and screws of sufficient size with spacing 0.6 Mtr. Between Clamps.	Mtr	92.00
11.09.4	Above 185 sq. mm and upto 400 sq. mm fixed with 50 mm x 5 mm thick suitable length red oxide and enamel painted MS clamp and base, pvc rawl plug and screws of sufficient size with spacing 0.6 Mtr. Between Clamps.	Mtr	141.00
<b>11.10</b>	Add extra in item no. 11.1 to 11.4 for Laying Charges for cable through Manual Boggi by making pit at regular interval and repairing the pit after laying of cable with PCC/ Bitumin as required.	Mtr	114.00
<b>11.11</b>	Add Extra in item no. 11.1 to 11.4 for Laying Charges for cable through Vermeer machine by making pit at regular interval and repairing the pit after laying of cable with PCC/ Bitumin as required.	Mtr	267.00

## Chapter E - 12

### LT Cable Termination & Accessories

Code No.	Description	Unit	Complete Rate
12.1	Supplying and making one end termination with Nickel plated heavy duty brass single compression gland (as per IS 12943-1990)) SIBG type consisting of Check Nut, Gland Body, Metal Washer(3 Nos.), Outer Seal Rubber Ring, Compression Nut, heavy duty aluminium lugs (as per IS 8309 -1993) duly crimped with crimping tool, PVC tape as per IS 8337-1976 of following size of PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.1.1	2 x 4.0 sq.mm	Set	106.00
12.1.2	2 x 6.0 sq.mm	Set	142.00
12.1.3	2 x 10.0 sq.mm	Set	143.00
12.1.4	2 x 16.0 sq.mm	Set	145.00
12.1.5	2 x 25.0 sq.mm	Set	172.00
12.1.6	2 x 35.0 sq.mm	Set	200.00
12.1.7	2 x 50.0 sq.mm	Set	218.00
12.1.8	2 x 70.0 sq.mm	Set	251.00
12.1.9	3 x 4.0 sq.mm	Set	121.00
12.1.10	3 x 6.0 sq.mm	Set	157.00
12.1.11	3 x 10.0 sq.mm	Set	159.00
12.1.12	3 x 16.0 sq.mm	Set	172.00
12.1.13	3 x 25.0 sq.mm	Set	216.00
12.1.14	3 x 35.0 sq.mm	Set	219.00
12.1.15	3 x 50.0 sq.mm	Set	263.00
12.1.16	3 x 70.0 sq.mm	Set	282.00
12.1.17	3.5 x 25.0 sq.mm	Set	231.00
12.1.18	3.5 x 35.0 sq.mm	Set	258.00
12.1.19	3.5 x 50.0 sq.mm	Set	286.00
12.1.20	3.5 x 70.0 sq.mm	Set	382.00
12.1.21	3.5 x 95.0 sq.mm	Set	601.00
12.1.22	3.5 x 120.0 sq.mm	Set	708.00
12.1.23	3.5 x 150.0 sq.mm	Set	777.00
12.1.24	3.5 x 185.0 sq.mm	Set	1072.00
12.1.25	3.5 x 240.0 sq.mm	Set	1174.00
12.1.26	3.5 x 300.0 sq.mm	Set	1441.00
12.1.27	3.5 x 400.0 sq.mm	Set	2070.00
12.1.28	3.5 x 500.0 sq.mm	Set	2639.00
12.1.29	3.5 x 630.0 sq.mm	Set	3145.00
12.1.30	4 x 4.0 sq.mm	Set	136.00
12.1.31	4 x 6.0 sq.mm	Set	172.00
12.1.32	4 x 10.0 sq.mm	Set	185.00
12.1.33	4 x 16.0 sq.mm	Set	189.00

Code No.	Description	Unit	Complete Rate
12.1.34	1 x 70.0 sq.mm	Set	202.00
12.1.35	1 x 95.0 sq.mm	Set	203.00
12.1.36	1 x 120.0 sq.mm	Set	234.00
12.1.37	1 x 150.0 sq.mm	Set	254.00
12.1.38	1 x 185.0 sq.mm	Set	374.00
12.1.39	1 x 240.0 sq.mm	Set	350.00
12.1.40	1 x 300.0 sq.mm	Set	465.00
12.1.41	1 x 400.0 sq.mm	Set	715.00
12.1.42	1 x 500.0 sq.mm	Set	860.00
12.1.43	1 x 630.0 sq.mm	Set	952.00
12.1.44	1 x 800.0 sq.mm	Set	1592.00
12.1.45	1 x 1000.0 sq.mm	Set	1840.00
12.2	Supplying and making one end termination with Nickel plated heavy duty brass single compression gland (as per IS 12943-1990)) SIBG type consisting of Check Nut, Gland Body, Metal Washer(3 Nos.), Outer Seal Rubber Ring, Compression Nut, heavy duty Copper lugs (IS 8337- 1976) duly crimped with crimping tool, PVC tape for following size of PVC insulated & PVC sheathed/ XLPE copper conductor cable of 1100 volt grade as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.2.1	1 x 16.0 sq.mm	Set	113.00
12.2.2	1 x 25.0 sq.mm	Set	133.00
12.2.3	1 x 35.0 sq.mm	Set	140.00
12.2.4	1 x 50.0 sq.mm	Set	202.00
12.2.5	1 x 70.0 sq.mm	Set	228.00
12.2.6	1 x 95.0 sq.mm	Set	278.00
12.2.7	1 x 120.0 sq.mm	Set	337.00
12.2.8	2 x 4.0 sq.mm	Set	128.0
12.2.9	2 x 6.0 sq.mm	Set	131.0
12.2.10	2 x 10.0 sq.mm	Set	154.0
12.2.11	2 x 16.0 sq.mm	Set	161.0
12.2.12	2 x 25.0 sq.mm	Set	197.0
12.2.13	2 x 35.0 sq.mm	Set	210.0
12.2.14	2 x 50.0 sq.mm	Set	279.0
12.2.15	2 x 70.0 sq.mm	Set	351.0
12.2.16	2 x 95.0 sq.mm	Set	422.0
12.2.17	2 x 120.0 sq.mm	Set	580.0
12.2.18	3 x 1.5 sq.mm	Set	130.0
12.2.19	3 x 2.5 sq.mm	Set	132.0
12.2.20	3 x 4.0 sq.mm	Set	148.0
12.2.21	3 x 6.0 sq.mm	Set	174.0
12.2.22	3 x 10.0 sq.mm	Set	176.0
12.2.23	3 x 16.0 sq.mm	Set	197.0
12.2.24	3 x 25.0 sq.mm	Set	255.0
12.2.25	3 x 35.0 sq.mm	Set	273.0
12.2.26	3 x 50.0 sq.mm	Set	354.0

Code No.	Description	Unit	Complete Rate
12.2.27	3 x 70.0 sq.mm	Set	432.0
12.2.28	3 x 95.0 sq.mm	Set	604.0
12.2.29	3 x 120.0 sq.mm	Set	905.0
12.2.30	4 x 1.5 sq.mm	Set	135.0
12.2.31	4 x 2.5 sq.mm	Set	137.0
12.2.32	4 x 4.0 sq.mm	Set	176.0
12.2.33	4 x 6.0 sq.mm	Set	181.0
12.2.34	4 x 10.0 sq.mm	Set	208.0
12.2.35	4 x 16.0 sq.mm	Set	222.0
12.2.36	4 x 25.0 sq.mm	Set	286.0
12.2.37	4 x 35.0 sq.mm	Set	333.0
12.2.38	4 x 50.0 sq.mm	Set	411.0
12.2.39	4 x 70.0 sq.mm	Set	588.0
12.2.40	4 x 95.0 sq.mm	Set	972.0
12.2.41	4 x 120.0 sq.mm	Set	1128.0
12.2.42	6 x 1.5 sq.mm	Set	181.0
12.2.43	6 x 2.5 sq.mm	Set	183.0
12.2.44	8 x 1.5 sq.mm	Set	190.0
12.2.45	8 x 2.5 sq.mm	Set	204.0
12.2.46	10 x 1.5 sq.mm	Set	224.0
12.2.47	10 x 2.5 sq.mm	Set	228.0
12.2.48	12 x 1.5 sq.mm	Set	234.0
12.2.49	12 x 2.5 sq.mm	Set	265.0
12.3	Supplying and making end termination with heavy aluminium lugs ( Pin / ring type ) confirming to IS 8309 -1993 & IS 8337-1976 duly crimped with crimping tool, PVC tape etc of following size.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.3.1	1.5 Sq.mm	Each	2.0
12.3.2	2.5 Sq.mm	Each	2.0
12.3.3	4.0 Sq.mm	Each	2.0
12.3.4	6.0 Sq.mm	Each	3.0
12.3.5	10.0 Sq.mm	Each	4.0
12.3.6	16.0 Sq.mm	Each	5.0
12.3.7	25.0 Sq.mm	Each	7.0
12.3.8	35.0 Sq.mm	Each	9.0
12.3.9	50.0 Sq.mm	Each	12.0
12.3.10	70.0 Sq.mm	Each	18.0
12.3.11	95.0 Sq.mm	Each	19.0
12.3.12	120.0 Sq.mm	Each	26.0
12.3.13	150.0 Sq.mm	Each	34.0
12.3.14	185.0 Sq.mm	Each	44.0
12.3.15	240.0 Sq.mm	Each	69.0
12.3.16	300.0 Sq.mm	Each	95.0
12.3.17	400.0 Sq.mm	Each	135.0
12.3.18	500.0 Sq.mm	Each	198.0
12.3.19	630.0 Sq.mm	Each	243.0
12.3.20	800.0 Sq.mm	Each	399.0

Code No.	Description	Unit	Complete Rate
12.3.21	1000.0 Sq.mm	Each	554.0
12.4	Supplying and making end termination with heavy duty Copper lugs ( ANY type ) confirming to IS 8337 -1976 duly crimped with crimping tool, PVC tape etc of following size.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.4.1	1.5 Sq.mm	Each	6.0
12.4.2	2.5 Sq.mm	Each	6.0
12.4.3	4.0 Sq.mm	Each	7.0
12.4.4	6.0 Sq.mm	Each	8.0
12.4.5	10.0 Sq.mm	Each	10.0
12.4.6	16.0 Sq.mm	Each	13.0
12.4.7	25.0 Sq.mm	Each	20.0
12.4.8	35.0 Sq.mm	Each	27.0
12.4.9	50.0 Sq.mm	Each	43.0
12.4.10	70.0 Sq.mm	Each	67.0
12.4.11	95.0 Sq.mm	Each	88.0
12.4.12	120.0 Sq.mm	Each	128.0
12.5	Supply, Fabricating & installing following sizes of perforated Hot dipped Galvanized iron cable tray ( Galvanized thickness not less then 50 microns) with perforation not more then 17.5% in convenient section including horizontal and vertical bends, reducers tees,cross members and other accessories as required and duly suspended from the ceiling with GI suspenders including GI bolts & nuts , fastners, supports etc. as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.5.1	100mm x 50mm x 1.6mm	Mtr	553.0
12.5.2	150mm x 50mm x 1.6mm	Mtr	675.0
12.5.3	225mm x 50mm x 1.6mm	Mtr	874.0
12.5.4	300mm x 50mm x 1.6mm	Mtr	1053.0
12.5.5	375mm x 50mm x 2.0mm	Mtr	1633.0
12.5.6	450mm x 50mm x 2.0mm	Mtr	1876.0
12.5.7	600mm x 50mm x 2.0mm	Mtr	2376.0
12.5.8	300mm x 62.5mm x 2.0mm	Mtr	1471.0
12.5.9	375mm x 62.5mm x 2.0mm	Mtr	1728.0
12.5.10	450mm x 62.5mm x 2.0mm	Mtr	1971.0
12.5.11	600mm x 62.5mm x 2.0mm	Mtr	2470.0
12.5.12	750mm x 62.5mm x 2.0mm	Mtr	2997.0
12.5.13	600mm x 75mm x 2.0mm	Mtr	2565.0
12.5.14	750mm x 75mm x 2.0mm	Mtr	3078.0

Code No.	Description	Unit	Complete Rate
12.6	Supply, Fabricating & installing following sizes of perforated Powder coated MS cable tray with perforation not more than 17.5% in convenient section including horizontal and vertical bends, reducers tees, cross members and other accessories as required and duly suspended from the ceiling with GI suspenders including GI bolts & nuts, fasteners, supports etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work, refer Annexure "A" attached with this BSR.		
12.6.1	100mm x 50mm x 1.6mm	Mtr	480.0
12.6.2	150mm x 50mm x 1.6mm	Mtr	584.0
12.6.3	225mm x 50mm x 1.6mm	Mtr	755.0
12.6.4	300mm x 50mm x 1.6mm	Mtr	907.0
12.6.5	375mm x 50mm x 2.0mm	Mtr	1402.0
12.6.6	450mm x 50mm x 2.0mm	Mtr	1609.0
12.6.7	600mm x 50mm x 2.0mm	Mtr	2036.0
12.6.8	300mm x 62.5mm x 2.0mm	Mtr	1265.0
12.6.9	375mm x 62.5mm x 2.0mm	Mtr	1485.0
12.6.10	450mm x 62.5mm x 2.0mm	Mtr	1691.0
12.6.11	600mm x 62.5mm x 2.0mm	Mtr	2118.0
12.6.12	750mm x 62.5mm x 2.0mm	Mtr	2571.0
12.6.13	600mm x 75mm x 2.0mm	Mtr	2200.0
12.6.14	750mm x 75mm x 2.0mm	Mtr	2640.0
12.7	Supply, Fabricating & installing following sizes of Hot dipped Galvanized iron cable tray (Galvanized thickness not less than 50 microns) with rungs at span of 250mm including horizontal and vertical bends, reducers tees, cross members and other accessories as required and duly suspended from the ceiling/wall with M.S. suspenders etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work, refer Annexure "A" attached with this BSR.		
12.7.1	100mm x 50mm x 1.6mm	Mtr	440.0
12.7.2	150mm x 50mm x 1.6mm	Mtr	533.0
12.7.3	225mm x 50mm x 1.6mm	Mtr	689.0
12.7.4	300mm x 50mm x 1.6mm	Mtr	826.0
12.7.5	375mm x 50mm x 2.0mm	Mtr	1274.0
12.7.6	450mm x 50mm x 2.0mm	Mtr	1460.0
12.7.7	600mm x 50mm x 2.0mm	Mtr	1847.0
12.7.8	300mm x 62.5mm x 2.0mm	Mtr	1150.0
12.7.9	375mm x 62.5mm x 2.0mm	Mtr	<b>1350.00</b>
12.7.10	450mm x 62.5mm x 2.0mm	Mtr	1536.00
12.7.11	600mm x 62.5mm x 2.0mm	Mtr	1922.00
12.7.12	750mm x 62.5mm x 2.0mm	Mtr	2335.0
12.7.13	600mm x 75mm x 2.0mm	Mtr	1998.0
12.7.14	750mm x 75mm x 2.0mm	Mtr	2397.0

Code No.	Description	Unit	Complete Rate
12.8	Supplying and fixing of CE certified and UL listed GI wire mesh cable tray made from spot welded steel wire hot dipped galvanised between 60 and 80 microns of zinc as per BS 729 including horizontal and vertical bends, reducers, tees, cross members and other OEM made accessories like wall clamp, hold down clamps, Earthing terminal, brackets as required, and duly suspended from the ceiling with electro-zinc coated TF rods, etc. as required of following sizes All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.8.1	100 mm x 50 mm x 6 mm	Mtr	533.0
12.8.2	150 mm x 50 mm x 6 mm	Mtr	649.0
12.8.3	200 mm x 50 mm x 6 mm	Mtr	841.0
12.8.4	300 mm x 50 mm x 6 mm	Mtr	1012.0
12.8.5	400 mm x 50 mm x 6 mm	Mtr	1569.0
12.8.6	500 mm x 50 mm x 6 mm	Mtr	1802.0
12.8.7	100 mm x 100 mm x 6 mm	Mtr	779.0
12.8.8	150 mm x 100 mm x 6 mm	Mtr	896.0
12.8.9	200 mm x 100 mm x 6 mm	Mtr	1025.0
12.8.10	300 mm x 100 mm x 6 mm	Mtr	1258.0
12.8.11	400 mm x 100 mm x 6 mm	Mtr	1505.0
12.8.12	500 mm x 100 mm x 6 mm	Mtr	1738.0
12.9	Supply and fixing following size of Hot dipped Galvanized (275 GSM) floor raceways / Under floor trunking with/ without partition, including common cover, joint sleeve, cross over junction Box etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.9.1	75 mm x 25 mm x 1.5 mm	Mtr	1107.0
12.9.2	100 mm x 25 mm x 1.5 mm	Mtr	1365.0
12.9.3	150 mm x 25 mm x 1.5 mm	Mtr	2022.0
12.9.4	250 mm x 25 mm x 1.5 mm	Mtr	3169.0
12.9.5	300 mm x 25 mm x 1.5 mm	Mtr	3705.0
12.9.6	75 mm x 38 mm x 1.5 mm	Mtr	1491.0
12.9.7	100 mm x 38 mm x 1.5 mm	Mtr	1712.0
12.9.8	150 mm x 38 mm x 1.5 mm	Mtr	2223.0
12.9.9	250 mm x 38 mm x 1.5 mm	Mtr	3189.0
12.9.10	300 mm x 38 mm x 1.5 mm	Mtr	3800.0
12.9.11	150 mm x 38 mm x 2.0 mm with 2 Compartment	Mtr	3298.0
12.9.12	250 mm x 38 mm x 2.0 mm with 3 Compartment	Mtr	4805.0
12.9.13	300 mm x 38 mm x 2.0 mm with 3 Compartment	Mtr	5222.0
12.9.14	Supply and fixing following Hot dipped Galvanized (275 GSM) accessories for floor raceways / Under floor trunking etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.9.15	Access Outlet 200 mm x 200 mm x 40-75 mm with Galvanized Lid	Mtr	8808.0

Code No.	Description	Unit	Complete Rate
12.9.16	Access Outlet 250 mm x 250 mm x 40-75 mm with Galvanized Lid	Mtr	11210.0
12.9.17	Access Outlet 300 mm x 300 mm x 40-75 mm with Galvanized Lid	Mtr	13911.0
12.9.18	Access Outlet 350 mm x 350 mm x 40-75 mm with Galvanized Lid	Mtr	18819.0
12.9.19	Access Outlet 250 mm x 250 mm x 40-75 mm with stainless steel Lid	Mtr	14081.0
12.9.20	Access Outlet 300 mm x 300 mm x 40-75 mm with stainless steel Lid	Mtr	21737.0
12.9.21	Access Outlet 350 mm x 350 mm x 60-120 mm with stainless steel Lid	Mtr	26747.0
12.10	S & Making Heat shrinkable type Tubular sleeve version outdoor straight through joint for following size of PVC/ XLPE insulated aluminium conductor cable of 1.1 KV grade as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.10.1	1 x 25 sq.mm-50 sq.mm	Set	1997.0
12.10.2	1 x 70 sq.mm-150 sq.mm	Set	3197.0
12.10.3	1 x 185 sq.mm-300 sq.mm	Set	4822.0
12.10.4	1 x 400 sq.mm	Set	4542.0
12.10.5	1 x 500 sq.mm	Set	5148.0
12.10.6	1 x 630 sq.mm	Set	5327.0
12.10.7	1 x 800 sq.mm	Set	5891.0
12.10.8	1 x 1000 sq.mm	Set	7152.0
12.10.9	2 x 1.5 sq.mm-6 sq.mm	Set	625.0
12.10.10	2 x 10.0-16.0 sq.mm	Set	1545.0
12.10.11	2 x 25.0 sq.mm-50 sq.mm	Set	2529.0
12.10.12	2 x 70.0 sq.mm-150 sq.mm	Set	4390.0
12.10.13	2 x 185.0 sq.mm-300 sq.mm	Set	8302.0
12.10.14	2 x 400 sq.mm	Set	8932.0
12.10.15	2 x 500 sq.mm	Set	9634.0
12.10.16	3/3.5/4 x 1.5 sq.mm-6 sq.mm	Set	1016.0
12.10.17	3/3.5/4 x 10.0-16.0 sq.mm	Set	1768.0
12.10.18	3/3.5/4 x 25.0 sq.mm-50 sq.mm	Set	3231.0
12.10.19	3/3.5/4 x 70.0 sq.mm-150 sq.mm	Set	4918.0
12.10.20	3/3.5/4 x 185.0 sq.mm-300 sq.mm	Set	9006.0
12.10.21	3/3.5/4 x 400 sq.mm	Set	9626.0
12.10.22	3/3.5/4 x 500 sq.mm	Set	11381.0
12.11	S/F cable route marker with 10cm x 10cm x 5mm thick or 10 cm dia. G.I.plate with inscription thereon, bolted/welded to 35mm x 35mm x 5mm angle iron, 60cm long and fixing the same in ground in C C ( 1:3:6 ) as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	388.0



Code No.	Description	Unit	Complete Rate
12.12	P / L of Double wall corrugated HDPE pipe confirming to IS : 16205 P-24, Stiffness Class 750 N, Externally corrugated and having smooth surface inside with HDPE Coupler, Elbow, Tee at required Depth below the ground for laying cable of following Nominal Outer dia. MFR Test report from NABL accredited is to be submitted.(Excavation of Earth & Back filling with compaction is to be Paid Extra)All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.12.1	50 mm	Mtr	85.0
12.12.2	63 mm	Mtr	99.0
12.12.3	75 mm	Mtr	130.0
12.12.4	90 mm	Mtr	176.00
12.12.5	110 mm	Mtr	226.0
12.12.6	120 mm	Mtr	256.0
12.12.7	160 mm	Mtr	366.0
12.12.8	200 mm Dia.	Mtr	494.0
12.13	Providing and laying Non Pressure NP-3 class R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) etc. as required. (Excavation of Earth & Back filling with compaction is to be Paid Extra). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
12.13.1	200 mm Dia.	Mtr	560.00
12.13.2	250 mm dia.	Mtr	698.00
12.13.3	300 mm dia	Mtr	917.00
12.13.4	450 mm dia.	Mtr	1753.00
12.14	labour charges for Excavating trenches of required width for pipes dressing of sides, ramming of bottoms, depth up to 1.5 Mtr. including taking out the excavated soil, and then returning the soil as required in layers not exceeding 20cm in depth including consolidating each deposited layer by ramming, watering etc. and disposal of surplus excavated soil as directed within a lead of 50 Mtr.:		
12.14.1	All kind of Soils	Cum	213.00
12.14.2	Ordinary Rocks	Cum	305

## Chapter E - 13

### H T Cables & Termination Kits

Code No.	Description	Unit	Complete Rate
13.1	Providing & Laying XLPE insulated three core Armoured Aluminium cable for working voltage 11 K.V.(E) confirming IS :7098 P - 2 with H4-Grade electrolytic aluminium conductor confirming to IS: 8130 class-2 of purity >99.6 %, Insulation Screening: Extruded Semiconducting Compound followed by helically wrapped Copper Tape, round / flat strip armouring of cables , Inner / outer sheath PVC type ST-2 confirming to IS:5831 in existing RCC / Hume / Stoneware / PVC pipe/ open duct/cable trench / Cable tray including testing etc. as required of following size. OEM must have it's own in house NABL accredited Laboratory for testing procedure as per IS:10810 All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
13.1.1	3 core 95.0 Sq.mm	Mtr	1287.0
13.1.2	3 core 120.0 Sq.mm	Mtr	1465.0
13.1.3	3 core 150.0 Sq.mm	Mtr	1653.0
13.1.4	3 core 185.0 Sq.mm	Mtr	1904.0
13.1.5	3 core 240.0 Sq.mm	Mtr	2299.0
13.1.6	3 core 300.0 Sq.mm	Mtr	2690.0
13.2	Providing & Laying XLPE insulated three core Armoured Aluminium cable for working voltage 33 K.V.(E) confirming IS :7098 P - 2 with H4-Grade electrolytic aluminium conductor confirming to IS: 8130 class-2 of purity >99.6 %, Insulation Screening: Extruded Semiconducting Compound followed by helically wrapped Copper Tape, round / flat strip armouring of cables , Inner / outer sheath PVC type ST-2 confirming to IS:5831 in existing RCC / Hume / Stoneware / PVC pipe/ open duct/cable trench / Cable tray including testing etc. as required of following size. OEM must have it's own in house NABL accredited Laboratory for testing procedure as per IS:10810 All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
13.2.1	3 core 150.0 Sq.mm	Mtr	2780.0
13.2.2	3 core 185.0 Sq.mm	Mtr	3068.0
13.2.3	3 core 240.0 Sq.mm	Mtr	3536.0
13.2.4	3 core 300.0 Sq.mm	Mtr	3959.0

Code No.	Description	Unit	Complete Rate
13.3	Add Extra for Laying of one number XLPE power cable of 11/33 KV (Earthed) voltage grade direct in ground including excavation of trench of size 120 cm (Depth) x 35 cm(Width) , with procedure as per following points:- (a) Make a river sand bed of height 125 mm along the trench, (b) Lay the cable in the middle of the trench, (c) Provide river sand bed of height 125 mm on top of the cable. (d) Lay the protective Common burnt clay F.P.S. Bricks of Class designation 75 / Sand stone slabs of 50 mm thickness and 225 mm wide just above the sand bed vertically across the cable ( Approx. 9 no. Bricks per Mtr.), (e) Backfill the excavated soil leaving 300 mm from the Ground level, (f)Lay the Cable warning tape and again back-fill the remaining portion of the trench upto the ground level and compacting the earth	Mtr	233.0
13.4	Add Extra in Item no. 13.3 if Excavation done in Hard Rock / CC road / TAR Road and making Good the same	Mtr	39.0
13.5	Add Extra for Laying of one number additional XLPE power cable of 11/33 KV (Earthed) voltage grade direct in ground in the same trench in one tier horizontal formation including excavation of trench of size additional 20 cm in width, with procedure as per following points:- (a) Make a river sand bed of height 125 mm along the trench, (b) Lay another cable in middle of trench in such manner that spacing between another cable is 20 cm, (c) Provide sand bed of height 125 mm on top of the cable. (d) Lay the protective Common burnt clay F.P.S. Bricks of Class designation 75 / Sand stone slabs of 50 mm thickness and 225 mm wide just above the sand bed vertically across the cable ( Approx. 9 no. Bricks per Mtr.) (e) Backfill the excavated soil leaving 300 mm from the Ground level. (f)Lay the Cable warning tape and again back-fill the remaining portion of the trench upto the ground level and compacting the earth	Mtr	155.0
13.6	Add Extra in Item no. 13.5 if Excavation done in Hard Rock / CC road / TAR Road and making Good the same	Mtr	22.0
13.12	Providing & making heat shrinkable type indoor/outdoor/straight through terminations/ joint kit suitable for 11 KV / 33 KV (Earthed) cable with required components, prepration of cable ends. Type test report should be as per IS13573:2011 which covered all sequence for table 2 for termination kit and table 3 for streight through joint inclusive thermal & dynamic short circuit test, humidity test, soil fog test. Cross linking shall be done out side factory with E- beam/ peroxide technology. Extrusion process shall be in house OEM within same vicinity. including testing etc. as required of following sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>13.12.1</b>	<b>11 KV End Termination Kit Indoor type</b>		
13.12.1.1	3 core up to 35 Sqmm	Each	3975.0
13.12.1.2	3 core 50/70/95 Sq.mm	Each	4812.0
13.12.1.3	3 core 120/150/185 Sq.mm	Each	5862.0
13.12.1.4	3 core 240/300 Sq.mm	Each	6845.0

Code No.	Description	Unit	Complete Rate
13.12.1.5	3 core 400 Sq.mm	Each	7840.0
<b>13.12.2</b>	<b>11 KV End Termination Kit Outdoor type</b>		
13.12.2.1	3 core up to 35 Sqmm	Each	5987.0
13.12.2.2	3 core 50/70/95 Sq.mm	Each	7041.0
13.12.2.3	3 core 120/150/185 Sq.mm	Each	8063.0
13.12.2.4	3 core 240/300 Sq.mm	Each	9330.0
13.12.2.5	3 core 400 Sq.mm	Each	10136.0
<b>13.12.3</b>	<b>11 KV Straight Through Joint Kit</b>		
13.12.3.1	3 core up to 35 Sq.mm	Each	8282.0
13.12.3.2	3 core 50/70/95 Sq.mm	Each	9265.0
13.12.3.3	3 core 120/150/185 Sq.mm	Each	12076.0
13.12.3.4	3 core 240/300 Sq.mm	Each	14357.0
13.12.3.5	3 core 400 Sq.mm	Each	15971.0
<b>13.12.4</b>	<b>33 KV End Termination Kit Indoor type</b>		
13.12.4.1	3 core 95 Sq.mm	Each	7212.0
13.12.4.2	3 core 120/150/185 Sq.mm	Each	8191.0
13.12.4.3	3 core 240/300/400 Sq.mm	Each	9886.0
<b>13.12.5</b>	<b>33 KV End Termination Kit Outdoor type</b>		
13.12.5.1	3 core 95 Sq.mm	Each	7442.0
13.12.5.2	3 core 120/150/185 Sq.mm	Each	8948.0
13.12.5.3	3 core 240/300/400 Sq.mm	Each	10332.0
<b>13.12.6</b>	<b>33 KV Straight Through Joint Kit</b>		
13.12.6.1	3 core 95/120/150 Sq.mm	Each	18287.0
13.12.6.2	3 core 185/240/300 Sq.mm	Each	21657.0
13.12.6.3	3 core 400 Sq.mm	Each	24581.0

## Chapter E 14

### Earthing & Lightning Arrester

Code No.	Description	Unit	Complete Rate
14.1	Pipe Earthing as per IS:3043- 1987 with 3.0 Mtr. Long, 40 mm dia. ' B ' class G.I. Pipe IS: 1239 (Part-1) 2004, Equivalent to BS : 1387 with perforated holes of 12 mm dia ,including all accessories like nut, bolts, reducer, nipple, wire meshed funnel, and Heavy duty weather proof poly-propylene earth pit chamber with lockable Jam free lid suitable for safe working load 5000 Kg or more of size Top Dia. 225 to 260 mm, Bottom Dia 300 to 350 mm. and Height 250 to 300 mm. and embodying the pipe complete with alternate layers salt and coke/ charcoal, testing of earth resistance for value of 5 ohms or less as required & must record by engineer in charge during site visit and ensure to enter in measurment book.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Set	3643.0
14.2	Plate Earthing as per IS:3043 with Hot dipped G.I. Earth plate of size 600mm x 600mm x 6.0mm by embodying 3 to 4 mtr. below the ground level with 20 mm dia. G.I. 'B' class watering Pipe ,including all accessories like nut, bolts, reducer, nipple, wire meshed funnel, and Heavy duty weather proof poly-propylene earth pit chamber with lockable Jam free lid suitable for safe working load 5000 Kg or more of size Top Dia. 225 to 260 mm, Bottom Dia 300 to 350 mm. and Height 250 to 300 mm. and embodying the pipe complete with alternate layers salt and coke/ charcoal, testing of earth resistance for value of 5 ohms or less as required & must record by engineer in charge during site visit and ensure to enter in measurment book.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Set	5733.0
14.3	Plate Earthing as per IS:3043 with copper Earth plate of purity >95% of size 600mm x 600mm x 3.0mm by embodying 3 mtr. below the ground level with 20 mm dia. G.I. 'B' class watering Pipe ,including all accessories like nut, bolts, reducer, nipple, wire meshed funnel, and Heavy duty weather proof poly-propylene earth pit chamber with lockable Jam free lid suitable for safe working load 5000 Kg or more of size Top Dia. 225 to 260 mm, Bottom Dia 300 to 350 mm. and Height 250 to 300 mm. and embodying the pipe complete with alternate layers salt and coke/ charcoal, testing of earth resistance for value of 5 ohms or less as required & must record by engineer in charge during site visit and ensure to enter in measurment book. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Set	15144.0

Code No.	Description	Unit	Complete Rate
14.4	Supply and installation of high tensile low carbon steel rod molecularly bonded with 99.9 % Copper thickness (250 microns) and confirming to UL 467, IS/IEC 62561-2 of following size and length and as per point mentioned (a), (b), [c], (d), (e) below :- (a) Bore a hole of dia. 100 mm of required length, Place the rod in the centre of Hole (b) filled with anti corrosive conductive compounds with the permanent sealings at both the ends, CPRI/ ERDA tested with RMS capacity of minimum 30 KA for withstanding 1 second .To ensure the moisture content and electrical conductivity, 25 kg for 2000 mm & 50 Kgs for 3000mm of resistance lowering earth enhancement material shall be used as a backfill compound. The compound shall be tested form NABL acredeated lab for low resistivity ( less than 0.12 Ohm - meter ) & high conductivity in nature with carbon as a major content as per referance of IS 3043-1987,IEEE 80-2013 (clause 14.5d) , IEEE 837 & IER 1956 with latest amendemnts © Connect the rod with copper Strip/Conductor/Wire with suitable clamp made from tinned copper and SS 304 Bolt (d) Place Heavy duty weather proof poly-propylene earth pit chamber with lockable Jam free lid suitable for safe working load 5000 Kg or more of size Top Dia. 225 to 260 mm, Bottom Dia 300 to 350 mm. and Height 250 to 300 mm. (d) Testing of earth resistance for value of 5 ohms or less as required & must record by engineer in charge during site visit and ensure to enter in measurment book. (e) Test certificates for confirming above standards from OEM is mandatory. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
14.4.1	17.2 mm thick and 3 Mtr. Long	Set	7010.00
14.4.1	25 mm thick and 3 Mtr. Long	Set	7955.00
14.5	Supply & Laying following size earth strip in horizontal or vertical run in surface by means of Earth strip DMC Insulator including riveting/ soldering/ welding, Jointing shall be done by overlapping and with 2 set of Brass (for Cu strip) / GI (for GI Strip) nut bolt & spring washer spaced at 50cm making connection etc. as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
14.5.1	20mm x 3mm copper strip	Mtr.	781.0
14.5.2	25mm x 3mm copper strip	Mtr.	1037.0
14.5.3	25mm x 5mm copper strip	Mtr.	1551.0
14.5.4	30mm x 5 mm copper strip	Mtr.	1940.0
14.5.5	40mm x 6mm copper strip	Mtr.	3090.0
14.5.6	50mm x 6mm copper strip	Mtr.	4120.0
14.5.7	20mm x 3mm tinned copper strip	Mtr.	866.0
14.5.8	25mm x 3mm tinned copper strip	Mtr.	1150.0
14.5.9	25mm x 5mm tinned copper strip	Mtr.	1720.0
14.5.10	30mm x 5 mm tinned copper strip	Mtr.	2152.0
14.5.11	40mm x 6mm tinned copper strip	Mtr.	3429.0
14.5.12	50mm x 6mm tinned copper strip	Mtr.	4572.0

Code No.	Description	Unit	Complete Rate
14.5.13	20mm x 3mm G.I. ( Hot Dipped ) Strip	Mtr.	88.0
14.5.14	25mm x 3mm G.I. ( Hot Dipped ) Strip	Mtr.	105.0
14.5.15	25mm x 6mm G.I. ( Hot Dipped ) Strip	Mtr.	196.0
14.5.16	32mm x 6mm G.I. ( Hot Dipped ) Strip	Mtr.	245.0
14.5.17	50mm x 6mm G.I. ( Hot Dipped ) Strip	Mtr.	406.0
14.5.18	20mm x 3mm Alum. Strip	Mtr.	110.0
14.5.19	25mm x 3mm Alum. Strip	Mtr.	133.0
14.5.20	25mm x 4 mm Alum. Strip	Mtr.	177.0
14.5.21	25mm x 5 mm Alum. Strip	Mtr.	215.0
14.5.22	30mm x 6mm Alum. Strip	Mtr.	304.0
14.5.23	50mm x 5mm Alum. Strip	Mtr.	429.0
14.5.24	50mm x 8mm Alum. Strip	Mtr.	695.0
14.5.25	100mm x 8mm Alum. Strip	Mtr.	1363.0
14.5.26	100mm x 10mm Alum. Strip	Mtr.	1690.0
14.5.27	200mm x 20mm Alum. Strip	Mtr.	6279.0
14.6	Supply & Laying following size earth wire in horizontal or vertical run in ground/surface/recess including riveting, soldering, saddles, making connection with GI/Cu purity >95% thimble etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
14.6.1	6 SWG tinned copper Wire	Mtr.	232.0
14.6.2	8 SWG tinned copper Wire	Mtr.	163.0
14.6.3	10 SWG tinned copper. Wire	Mtr.	107.0
14.6.4	6 SWG copper Wire	Mtr.	210.0
14.6.5	8 SWG copper Wire	Mtr.	148.0
14.6.6	10 SWG copper. Wire	Mtr.	97.0
14.6.7	6 SWG G.I. ( Hot Dipped ) Wire	Mtr.	27.0
14.6.8	8 SWG G.I. ( Hot Dipped ) Wire	Mtr.	20.0
14.6.9	10 SWG G.I. ( Hot Dipped ) Wire	Mtr.	14.0
14.6.10	16 Sq.mm Copper coated steel stranded conductor (Wt. 130 Kg/Km	Mtr.	48.0
14.6.11	25 Sq.mm Copper coated steel stranded conductor ( Wt. 200Kg/Km	Mtr.	74.0
14.7	Supply & Laying following size ' B ' class , G.I. Pipe confirming to IS : 1239 P - 1 ( 2004 ) with accessories like bend, socket etc. for laying earth conductor/ strip / cable in ground/ surface/ recess as required. All as per pre approved by Engineer in charge. (Earth Excavation will be Paid Extra)All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .		
14.7.1	15 mm dia.	Mtr.	205.0
14.7.2	20 mm dia.	Mtr.	259.0
14.7.3	25 mm dia.	Mtr.	358.0
14.7.4	32mm dia	Mtr.	448.0
14.7.5	40 mm dia.	Mtr.	516.0
14.7.6	50 mm dia.	Mtr.	718.0
14.7.7	65 mm dia.	Mtr.	915.0
14.7.8	80 mm dia.	Mtr.	1155.0
14.7.9	100 mm dia.	Mtr.	1657.0
14.7.10	150 mm dia.	Mtr.	2575.0

Code No.	Description	Unit	Complete Rate
14.8	Mesh earthing as per IS:3043 with Hot dipped galvanized earth strip of size 25 mm x 6 mm to form a mesh of size 1000 mm x 1000 mm in horizontal formation to create equal sections of 200 mm x 200 mm by means of welding and embodying 1 mtr. Below the ground level, refilling the pit by alternative layers of charcoal & salt up to 500 mm with 20 mm dia. GI 'B' class watering pipe, wire mesh funnel and Heavy duty weather proof poly-propylene earth pit chamber with lockable Jam free lid suitable for safe working load 5000 Kg or more of size Top Dia. 225 to 260 mm, Bottom Dia 300 to 350 mm. and Height 250 to 300 mm testing of earth resistance for value of 5 ohms or less as required & must record by engineer in charge during site visit and ensure to enter in measurment book. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	7235.0
14.10	P & F of Heavy duty weather proof poly-propylene earth pit chamber with lockable Jam free lid suitable for safe working load 5000 Kg or more of size Top Dia. 225 to 260 mm, Bottom Dia 300 to 350 mm. and Height 250 to 300 mm. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1012.0
14.11	S & F of Earth Bar with Disconnecting link Made out from 50 mm x 6 mm copper purity >95% /GI strip pre fitted on epoxy powder coated metal base mounted on hexagonal SMC Insulators of following Size.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .		
14.11.1	400 mm , 6 Way Copper	Each	2160.0
14.11.2	600 mm , 10 Way Copper	Each	2970.0
14.11.3	400 mm , 6 Way GI	Each	809.0
14.11.4	600 mm , 10 Way GI	Each	1079.0
14.12	Providing & Making of Exothermic joint in Tee / Square / Straight through joint in Strip for permanently bonding of copper to copper or copper to GI including required exothermic jointing kit comprising of graphite mould, weld powder, tools etc. as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	per Joint	1145.0
14.13	Supply, installation, testing & commissioning of following size & Material air termination rods confirming to IEC/EN 62561 with suitable OEM recommended mounting arrangement on parapet wall all as per standard , complete as required. the test report accredited by third party accreditation body like VDE/ ILAC/ DAKKS/ UL/ NABL is to be submitted.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .		
14.13.1	700 mm long, 10 mm Dia. Aluminium / AlMgSi	Set	1754.0



Code No.	Description	Unit	Complete Rate
14.13.2	1000 mm long, 10 mm Dia. Aluminium / AlMgSi	Set	2430.0
14.13.3	1500 mm long, 10 mm Dia. Aluminium / AlMgSi	Set	3374.0
14.13.4	2000 mm long, 16mm rod tapered to 10 mm, AlMgSi	Set	8502.0
14.13.5	3000 mm long, 16mm rod tapered to 10 mm, AlMgSi	Set	12817.0
14.14	Supply & Laying of Aluminum / SS / AlMgSi Round Conductor confirming to IEC/EN 62561 etc. as required. the test report accredited by third party accreditation body like VDE/ILAC/ DAKKS/ UL/ NABL is to be submitted. ( Supporting Clamps to be paid Extra )All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .		
14.14.1	8 mm Dia. Aluminium conductor	Mtr	263.0
14.14.2	8 mm Dia. AlMgSi conductor	Mtr	286.0
14.15	Supply & Fixing Air-termination rod clamps for connecting air-termination rods with one or two conductors. Material of clamp Al, with clamping range of air-termination rod 10 / 16 mm and Clamping range of conductor Rd 2x 8-10 mm, & Complied as per Standard EN 62561-1, tested to carry from 100KA (10/350µs) lightning current the test report accredited by third party accreditation body like VDE/ILAC/ DAKKS/ UL/ NABL is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Set	513.0
14.16	Supply and Fixing of stainless steel clamp for holding 8 mm dia. conductor on Parapet Wall / Side Fl 20 mm, Height- 20 mm & Complied as per Standard EN 62561-4. With accessories SS Screw and Gitty etc. as required. the test report accredited by third party accreditation body like VDE/ILAC/ DAKKS/ UL/ NABL is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Set	144.0
14.17	Supply and Fixing Polyamide Roof conductor Holder for Roof with Concrete Block with 8 mm conductor Holder including adhesive material to paste with roof where drilling not allowed.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Set	391.0
14.18	Supply and Fixing of Test Joint (Folding Clamp) made of SS,suitable to connect 8mm round conductor with 25 mm x 6 mm GI strip etc. as required. the test report accredited by third party accreditation body likeVDE/ILAC/ DAKKS/ UL/ NABL is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Set	1444.0

Code No.	Description	Unit	Complete Rate
14.19	Supply and Fixing GI flat (25x6mm) Strip. Having width- 25mm, Thickness- 6mm, Material- Hot dipped Galvanized Iron, Coating thickness- Avg. 70 microns. & Complied as per IEC 62561-2 GI strip holder of material- Dow moulded compound, at spacing of 0.5 Mtr. having height- 19mm, Slot Size- 25x6 mm Etc. as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Mtr.	364.0
14.20	Clamps to connect reinforcing steel mesh or reinforcement at every 2 meters with round and flat conductors. of material- St/bare, having clamping range- Rd / Rd 6-22 / 6-10 mm, Clamping range- Rd / FI 6-22 / 40 mm & Complied as per Standard EN 62561-1 the test report accredited by third party accreditation body like VDE/ILAC/ DAKKS/ UL/ NABL is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	540.0
14.21	P & F cross universal connector: For T and cross / parallel connection, to route vertical down conductor /mesh formation made of hot dipped galvanised iron with necessary screws etc as required. Installed with 4 hexagonal bolts M8*25 with M8 hexagonal nuts Complied as per Standard EN 62561-1.,the test report accredited by third party accreditation body like VDE/ILAC/ DAKKS/ UL/ NABL is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	648.0
14.22	P & F Universal clamp made of SS to connect rod with flat conductor Complied as per Standard EN 62561-1.,the test report accredited by third party accreditation body like VDE/ILAC/ DAKKS/ UL/ NABL is to be submitted.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	1256.0
14.23	P & F Lightning counter - To count no of lightning strike & it can record the date and time of the lightning incident also tested as per IEC 62561-6. the test report accredited by third party accreditation body like VDE/ILAC/ DAKKS/ UL/ NABL is to be submitted.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	9046.00
14.24	Providing & Fixing of ISO Certified company made lightning conductor finial as per PWD specification for electrical Works as per IS 2309-1989 made out of 25 mm dia.,300 mm long copper solid rod having single prong at top with 85 mm dia., 3 mm thick copper base plate including holes etc. complete as required. All as per pre approved by Engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	3102.00

Code No.	Description	Unit	Complete Rate
14.25	Providing & Fixing of ISO Certified company made lightning conductor finial as per PWD specification for electrical Works as per IS 2309-1989 made out of 25 mm dia., 300 mm long G.I. solid Rod having single prong at top with 85 mm dia., 3 mm thick G.I. base plate including holes etc. complete as required. All as per pre approved by Engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	1752.00
14.26	Providing & Fixing of testing joint, made out of 20mm x 3mm copper Strip, 125 mm long, with 4 no. tinned brass bolts, nuts, checknuts, spring washer etc. complete as required. All as per pre approved by Engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	1012.00
14.27	Providing & Fixing of testing joint, made out of 20mm x 3mm G.I. Strip, 125 mm long, with 4 no. G.I. bolts, nuts, checknuts, spring washer etc. complete as required. All as per pre approved by Engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	606.00

## Chapter E -15

### Fans

Code No.	Description	Unit	Complete Rate
15.1	Making of hole in wall (brick/stone) of required and placing NP-2 RCC pipe ring of required size for housing exhaust fan and making good the same, with cement plaster required of following size. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.1.1	Up to 457 mm size	Each	348.00
15.1.2	more than 457 mm & up to 610 mm	Each	488.00
15.2	Supply & Fixing of phenolic laminated board of 6.4 mm thick for fresh air fan/exhaust fan up to size of 300 mm on existing window frame including cost of board, cutting of hole , Nut bolts etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sqm	1369.00
15.3	Installation , testing and Commissioning of ceiling fan (any size) including wiring the down rod up to 30 cm with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.3.1	With regulator	Each	100.00
15.3.2	Without regulator	Each	87.00
15.4	Providing & Fixing of 1200 mm sweep BLDC technology power saving ceiling fan which can withstand on votage fluctuations from 140 volts to 240 volts ,power factor not less then 0.9 , service value (CMM/W) minimun 6.85 , air delivery minimun 220 CMM, speed minimum 330 RPM ( tolerance as per IS:374 2019 ) THD less then 10% and complete with down rod of 15 mm dia . ERW (Electrical resistance welded ) of 1.6mm nominal thick medium duty steel pipe up to 80 cm , cotter pin with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.4.1	Without Remote	Each	3378.00
15.4.2	With Remote	Each	3568.00
15.5	Providing & Fixing of of BLDC Technology ventilating fans , single phase with PVC impeller, ABS body, Double Ball bearing, automatic back lower shutter including making connection, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.5.1	150 mm sweep with Min. Air delivery 350 cmh, 2000 RPM	Each	2417.00
15.5.2	200 mm sweep with Min. Air delivery 800 cmh, 1600 RPM	Each	2538.00
15.5.3	250 mm sweep with Min. Air delivery 1150 cmh, 1300 RPM	Each	2741.00

Code No.	Description	Unit	Complete Rate
15.6	Providing & Fixing of 400 mm Sweep BLDC technology Oscillating type Wall mounting / Pedestal type fans with Three speed, ON and OFF position, Double Wall bearing with front and back 120 or more ribs guard; Three no. blades, noise level should be $\leq 75$ dB, including fixing with anchor bolts, making connection testing etc. as required. ( With Remote ) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.6.1	Wall mounting type with Service value 2.0 CMM /W, Min. Air Delivery 71 CMM	Each	4699.00
15.6.2	Pedestal Type having Adjustable Height with Service value 2.6 CMM /W, Min. Air Delivery 85 CMM	Each	6023.00
15.7	Providing & Fixing of BEE Star rated copper wounded double ball bearing capacitor start, aluminium body & Metallic blade ceiling fan Conforming to all the performance requirements laid down in IS 374:2019 including all amendments, as applicable ; & Carry BIS licensing (i.e. ISI marking) with down rod up to 80 cm with secondary support safety cable ( steel rope ) , cotter pin with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.7.1	1200 mm Sweep BEE 1 Star rated (service value $\geq 4.0$ to $< 4.5$ )	Each	1890.00
15.7.2	1200 mm Sweep BEE 2 Star rated (service value $\geq 4.5$ to $< 5$ )	Each	2025.00
15.7.3	1200 mm Sweep BEE 3 Star rated (service value $\geq 5.0$ to $< 5.5$ )	Each	2190.00
15.7.4	1400 mm Sweep BEE 2 Star rated (service value $\geq 4.5$ to $< 5$ )	Each	2430.00
15.7.5	1400 mm Sweep BEE 3 Star rated (service value $\geq 5.0$ to $< 5.5$ )	Each	2565.00
15.8	Providing & Fixing of shackle (iron hook) made from 2mm nominal thick CRCA sheet and bolts (2nos) of 6mm with spring washer nut, checknut & split pin as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	135.00
15.9	Providing & Fixing of of M.S. J- hook of standard design made out of 16 mm dia. M.S. round bar and fixed with cement concrete mortar with required support as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	179.00
15.10	P & F 1.2mm thick M.S. Recessed fan box, hexagonal/ round of size 130 mm dia, depth 75mm, 12 mm dia rod fan hook with 100 mm length extended on each side . All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR	Each	128.00
15.11	Providing & Fixing of of Double ball bearing, copper wounded capacitor start single phase metallic blade fresh air fan, in existing opening including cost of hardware , flexible 3 core copper conductor ,making connections, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.11.1	225 mm sweep	Each	1687.00
15.11.2	300 mm sweep	Each	1822.00

Code No.	Description	Unit	Complete Rate
15.12	Providing & Fixing of Heavy duty capacitor start, copper wound Double ball bearing 900/1400 RPM single phase Exhaust fan conforming to IS:2312 ISI marked in existing opening including making connections testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.12.1	300 mm sweep(900/1400 RPM)	Each	3175.00
15.12.2	380 mm sweep(900/1400 RPM)	Each	4255.00
15.12.3	450 mm sweep(900/1400 RPM)	Each	5883.00
15.12.4	600 mm sweep(700 / 900 RPM)	Each	10559.00
15.13	Providing & Fixing of ventilating fans Capacitor start, copper wounded, single phase with PVC impeller, ABS body, automatic openable louver shutter in existing opening including making connection, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.13.1	150 mm sweep	Each	1579.00
15.13.2	200 mm sweep	Each	1687.00
15.13.3	250 mm sweep	Each	1957.00
15.14	Providing & Fixing of Wall mounting / Pedestal type Heavy duty Air Circulator , Double ball bearing and with metal sturdy mesh guard; Aluminium alloy one piece blade and conforming to IS:2997, including fixing with anchor bolts, making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.14.1	450 mm sweep Wall mounting and three speed regulator with Minimum Air Delivery 150 Cum. / Minute	Each	7265.00
15.14.2	450 mm sweep Pedestal type and three speed regulator with Minimum Air Delivery 150 Cum. / Minute	Each	7961.00
15.14.3	600 mm sweep Wall mounting with Minimum Air Delivery 270 Cum. / Minute	Each	9459.00
15.14.4	600 mm sweep Pedestal type with Minimum Air Delivery 270 Cum. / Minute	Each	9830.00
15.14.5	750 mm sweep Wall mounting with Minimum Air Delivery 400 Cum. / Minute	Each	11522.00
15.14.6	750 mm sweep Pedestal type with Minimum Air Delivery 400 Cum. / Minute	Each	11927.00
15.15	Providing & Fixing of 450 mm Sweep Oscillating type Wall mounting / Pedestal type fans with Three speed, ON and OFF position, Sintered Iron bush oil impregnated, with metal front and back 120 or more ribs guard; Three no. Aluminium blades, minimum Air delivery 100 Cum. / Minute , Minimum Service Value 1.11 Cum./min/watt, noise level should be <= 75 dB, power consumption <= 120 watts, motor protection through thermal overload protection device, including fixing with anchor bolts, making connection testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.15.1	Wall mounting type with Adjustable Vertical Angle	Each	4969.00
15.15.2	Pedestal Type with Adjustable Height	Each	5294.00

Code No.	Description	Unit	Complete Rate
15.16	Providing & Fixing of extra down rod of 15 mm dia . ERW (Electrical resistance welded ) of 1.6mm nominal thick medium duty steel pipe including cutting, threading, drilling, fixing quarter pin etc as reqd. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Mtr.	212.00
15.17	Numbering of ceiling fans/ fixtures with approved enamel paint etc as reqd. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	27.00
15.18	P & F of Gravity Louver shutter of superior quality made out of frame of 18 swg M.S. sheet & Louvers made from 24 swg MS Sheet with enamel paint including cost of nuts, bolts, etc as reqd. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.18.1	Up to 380 mm size	Each	287.00
15.18.2	above 380 mm size	Each	361.00
15.19	P & F of Wall cowl with Bird Screen Suitable for Outside Wall of Exhaust Fan Opening of following size and made out from 24 SWG GI sheet as per instructions of Engineer in charge including fixing with suitable fasteners etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
15.19.1	Suitable for 300 mm sweep Exhaust Fan	Each	1090.00
15.19.2	Suitable for 380 mm sweep Exhaust Fan	Each	1524.00
15.19.3	Suitable for 450 mm sweep Exhaust Fan	Each	2033.00
15.20	S & F Extruded Aluminium Fresh Air / External Weather Louvre, Small Format type with 38 mm Flange width & 50 mm depth. Finish - Powder coated Off white with Alum. Mesh of required Size. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sqm	8759.00

## Chapter E - 16

### Storage Water Heaters

Code No.	Description	Unit	Complete Rate
16.1	Providing & Fixing of Vertical(BEE 5 star rated) / Horizontal( BEE 3 star rated) storage water heater with outer casing made of Engineering Plastic sheet (Upto 25 Ltr) / Metal rust proof Body (35 & 50 Ltr), Glass - line / Titanium Enamel coated Pressure Pump Compatible 8 bar pressure Inner tank, Glass Line Coated , mineral filled heating element, stem type, snap action adjustable thermostat , Dual indicating lamps Injected PUF insulation, Multi Function Valve etc. as required held in position with 2/4 no. 10/12 mm anchor Fastener, duly wired with 3 core 2.5/4.0 Sqmm PVC insulated & sheathed copper conductor and 16 A/25A three pin plug top with Portable Residual Current Device ( PRCD ) , including making inlet, outlet Flexible alloy connection, testing etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
16.1.1	6 Ltr.	Each	8511.00
16.1.2	10 Ltr.	Each	9189.00
16.1.3	15 Ltr.	Each	10304.00
16.1.4	25 Ltr.	Each	11568.00
16.1.5	35 Ltr.	Each	13970.00
16.1.6	50 Ltr.	Each	16565.00
16.2	Providing & Fixing of stem type ISI marked (IS 3017 / 85) snap action adjustable thermostat storage water heater including making connection testing etc. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	602.00
16.3	Providing & Fixing of stem type ISI marked (IS 3017 / 85) , snap action bipolar adjustable thermostat with built in auto thermal cut out of storage water heater including making connection testing etc. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	883.00



Code No.	Description	Unit	Complete Rate
16.4	Providing & Fixing 2 / 3 KW nickle plated, mineral filled heating element including making connection testing etc complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1043.00
16.5	Providing & Fixing of Glass Line Coated , mineral filled heating element including making connection testing etc complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1805.00
16.6	Providing & Fixing of Multi safety valve of 8.5 bar capacity with built in drain, NRV, Vacuum release, Pressure release etc. as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .I technical parameters of products/ work , refer Annex ure "A" attached with this BSR .	Each	441.00
16.7	Providing & Fixing of Twin neon indicating lamp of superior quality for storage water heater complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	120.00
16.8	Providing & Fixing of 13 mm Brass with C.P. finished ISI marked angle valve for storage water heater as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	433.00
16.9	Providing & Fixing of heavy duty flexible alloy pipe for storage water heater for inlet and outlet of suitable length including the cost of nuts, washers etc complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
16.9.1	450 mm	Set	562.00
16.9.2	600 mm	Set	642.00

Code No.	Description	Unit	Complete Rate
16.10	Charges for descaling of storage water heater including replacement of Multi Function Valve as required.	P.Job	720.00
16.11	Charges for Fixing of storage water heater including 10/12 mm Anchor fasteners of suitable size, testing, carrying from store to site,etc. as required.	P.Job	313.00
16.12	Providing & Fixing of 2.0 KW twin ceramic cartridge, Withstands temperatures up to 1000 C long lasting even in hard water including making connection testing etc complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1043.00
16.13	SITC of MNRE approved & confirming to IS:12933 P-1,2,3 & 5 Flat Plate Collector type solar hot water system having collector with Zincalume sheet outer body , Glass - line / Titanium Enamel coated Inner tank with Metal rust proof PUF insulated Body including electrical back up, Thermostat, Powder coated / Hot dipped galvanized MS stand for Collector & Tank etc. as required. of following capacity complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
16.13.1	100 litre/ day	Set	31470.00
16.13.2	200 litre/ day	Set	59122.00
16.13.3	250 litre/ day	set	73393.00
16.13.4	300 litre/ day	Set	90075.00
16.13.5	500 litre/ day	Set	159698.00

## Chapter E - 17

### Indoor Lighting

Code No.	Description	Unit	Complete Rate
17.1	Providing & Fixing of IP20 SMD Mid Power LED batten type integrated light fixture made from Powder coated Extruded aluminium housing with in built driver , System lumen efficacy $\geq 110$ lm/Watt output, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F. $\geq 0.95$ , CRI >80 , life time of minimum 50000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 & LM80) certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
17.1.1	1170mm(+/-10%) LED batten with min. lumen output 2200 lm	Each	492.0
17.1.2	570mm (+/-10%) batten with min. lumen output 1000 lm	Each	405.0
17.2	Providing & Fixing of energy efficient direct fit (Retrofit) Polycarbonate/ Glass housing SMD Mid Power LED tube rod (with integral driver & alum. heat sink ), on existing fixture. system lumen efficacy $\geq 100$ lm/Watt output, internal surge protection of 2.5 KV ,THD < 20% ,p.f. $\geq 0.95$ ,CRI >80 , life time of minimum 35000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 & LM80)certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
17.2.1	600mm , Min. Lumens output 1800 lm LED Tube rod with Polycarbonate Housing	Each	202.0
17.2.2	1200mm , Min. Lumens output 2000 lm LED Tube rod with Polycarbonate Housing	Each	270.0
17.2.3	1200mm, Min. Lumens output 2000 lm LED Tube rod with Glass Housing	Each	250.0
17.3	Providing & Fixing of IP-20 LED Recessed / Surface Mounted, Round / Sqare SMD Mid Power LED Downlight with power coated die-cast aluminum housing with UV Stabilized non yellowish Diffuser with BIS complience 2.5 KV surge protected Isolated driver, with Short & Open circuit protection, having efficiency > 85% . System Lumen efficacy of $\geq 110$ lm / watt, THD < 10 % , Pf. $\geq 0.95$ , CRI >80, life time of minimum 50000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K/ 5700°K /6000°K/6500°K (As per ANSI Bin) , maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing.  OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 & LM80) certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		

Code No.	Description	Unit	Complete Rate
<b>17.3.1 Recessed Mounting</b>			
<b>17.3.1.1</b>	Minimum lumen output 330 lm	Each	506.0
<b>17.3.1.2</b>	Minimum lumen output 650 lm	Each	675.0
<b>17.3.1.3</b>	Minimum lumen output 1300 lm	Each	1046.0
<b>17.3.1.4</b>	Minimum lumen output 1600 lm	Each	1161.0
<b>17.3.1.5</b>	Minimum lumen output 1950 lm	Each	1451.0
<b>17.3.1.6</b>	Minimum lumen output 2400 lm	Each	1850.0
<b>17.3.2 Surface Mounting (with extruded alumn. Housing )</b>			
<b>17.3.2.1</b>	Minimum lumen output 650 lm	Each	810.0
<b>17.3.2.2</b>	Minimum lumen output 1300 lm	Each	1181.0
<b>17.3.2.3</b>	Minimum lumen output 1950 lm	Each	1620.0
<b>17.3.2.4</b>	Minimum lumen output 2400 lm	Each	2059.0
<b>17.4</b>	Providing & Fixing of IP20, 2'x2' LED Surface/ Recessed mounting Mid power SMD type LED Light fixture not less than 50mm housing depth made from CRCA sheet steel housing, high purity / transmissivity UV stabilized Non -yellowish diffuser for uniform light distribution. High efficiency with 4 KV internal/external surge protection BIS certified isolated driver having efficiency > 85% , with Short & Open circuit protection (Integral with light fixture). System lumen efficacy of $\geq 120$ lm/Watt , THD < 10 % , p.f. $\geq 0.95$ ,CRI >80 , life time of minimum 50000 Burning Hours with , 70% of intial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing.		
	OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 & LM80) certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>17.4.1 Recessed Mounting</b>			
<b>17.4.1.1</b>	Minimum lumen output 3000 lm	Each	2288.0
<b>17.4.1.2</b>	Minimum lumen output 3600 lm	Each	2558.0
<b>17.4.1.3</b>	Minimum lumen output 4200 lm	Each	2984.0
<b>17.4.2 Surface Moutning</b>			
<b>17.4.2.1</b>	Minimum lumen output 3000 lm	Each	2491.0
<b>17.4.2.2</b>	Minimum lumen output 3600 lm	Each	2862.0
<b>17.4.2.3</b>	Minimum lumen output 4200 lm	Each	3308.0

Code No.	Description	Unit	Complete Rate
17.5	<p>Providing &amp; Fixing of IP20, 1100-1200 mm x 50-60 mm x 70-85 mm size Suspended mounting Mid power SMD type LED linear Light fixture made from Extruded Aluminium housing, PMMI diffuser for uniform light distribution. High efficiency with 4 KV internal/external surge protection BIS certified isolated driver having efficiency &gt; 85% , with Short &amp; Open circuit protection (Integral with light fixture). System lumen efficacy of <math>\geq 100</math> lm/Watt ,THD &lt; 10 % , p.f.<math>\geq 0.95</math>,CRI &gt;80 , life time of minimum 50000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing.</p> <p>OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 &amp; LM80) certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>		
17.5.1	Minimum lumen output 2000 lm	Each	4466.0
17.5.2	Minimum lumen output 3000 lm	Each	5422.0
17.6	<p>Providing &amp; Fixing of IP65 IK08 rated Integrated SMD Mid power LED bulk head type light fixture made from Pressure Die Cast AL housing suitable with integral driver, system lumen efficacy <math>\geq 100</math> lm/Watt output , THD &lt; 10% ,p.f.<math>\geq 0.95</math>,CRI &gt;80 , life time of minimum 50000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. surge protection 4 KV. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 &amp; LM80) certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>		
17.6.1	Minimum lumen output 1000 lm	Each	1647.0
17.7	<p>Providing &amp; Fixing of IP65 IK08 rated Integrated High power LED ( each LED between 3 to 5 watt power with secondary lencs on each LED) Highbay light fixture made from Pressure Die Cast Aluminium housing, toughned glass diffuser, potted driver, Eye bolt for mounting, system lumen efficacy <math>\geq 140</math> lm/Watt output , THD &lt; 10% ,p.f.<math>\geq 0.95</math>,CRI &gt;80 , life time of minimum 50000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. surge protection 4 KV inbuilt &amp; 10 KV external inside fixture.</p> <p>OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 &amp; LM80) certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>		
17.7.1	Minimum lumen output 10000 lm	Each	6683.0
17.7.2	Minimum lumen output 14000 lm	Each	7764.0
17.7.3	Minimum lumen output 16500 lm	Each	9790.0

Code No.	Description	Unit	Complete Rate
17.8	Providing & Fixing of Suspended mounting IP66 IK08 rated Integrated High power LED Wellglass light fixture made from Pressure Die Cast Aluminium housing, potted driver, Eye bolt for mounting, PC clear / Opal Diffuser, system lumen efficacy $\geq 120$ lm/Watt output , THD < 10% ,p.f. $\geq 0.95$ ,CRI >70 , life time of minimum 50000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. surge protection 4 KV . OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 & LM80)certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
17.8.1	Minimum lumen output 3500 lm	Each	2429.0
17.8.2	Minimum lumen output 4800 lm	Each	3239.0
17.9	Providing & Fixing of energy efficient /energy saving IP 20 LED direct retrofit Bulb in existing holder or fixture as required with system lumen efficacy $\geq 100$ lm/Watt output ,pf 0.95 , CRI >70, minimum life time of minimum 25000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) certificate / Report from OEM shall be submitted. All as per pre approved by engineer in charge . for additional technical parameters of product/ work, refer Annexure "A" attacheded with this BSR.		
17.9.1	2/3 Watt	Each	81.0
17.9.2	6/7 Watt	Each	94.0
17.9.3	9 Watt	Each	115.0
17.9.4	15 Watt	Each	135.0
17.9.5	18/20 Watt	Each	162.0
17.10	Providing & Fixing of IP20 SMD Mid Power LED batten with integrated box (min.1200mmx40mmx60mm including reflector) with replacable driver fixture made from Powder coated Extruded aluminium housing ,Min. lumen output 4400 lm, System lumen efficacy $\geq 110$ lm/Watt output, internal surge protection of 4.0 KV with Short & Open circuit protection,THD < 10% , P. F. $\geq 0.95$ , CRI >80 , life time of minimum 50000 Burning Hours with , 70% of intial Lumen maintaned till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of BIS standard and trade mark certificate ( T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing.  OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79 & LM80) certificate / Report from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1620.0

Code No.	Description	Unit	Complete Rate
17.11	Providing & Fixing of IP 20 box made out from 1.2mm thick CRCA sheet steel with depth of minimum 30 mm and finished with powder coating and suitable for mounting LED tube including side covers, holders , internal wiring to illuminate the single sided connection LED tube. ( Without tube). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
17.11.1	Suitable for 2' LED Tube shape fixture for single rod	Each	151.00
17.11.2	Suitable for 4' LED Tube shape fixture for single rod	Each	227.00
17.11.3	Suitable for 4' LED Tube shape fixture for double rod	Each	358.00

## Chapter E - 18

### Outdoor Lighting

Code No.	Description	Unit	Complete Rate
18.1	Supply and erection of Galvanized Iron pole with galvanizing done in single dipping (Average coating thickness Minimum 65 Microns) continuously tapered poles having Octagonal / Circular cross-sections designed to withstand the maximum wind speed as per IS 875, The pole shaft shall be made from sheet steel (HT Steel Conforming to grade S355JO) and confirming to BSEN 10025 and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. The welding of pole shaft shall be done by Submerged Arc Welding (SAW) process. pole shafts shall be provided with the rigid flange plate of suitable thickness (Fe 410 conforming to IS 226 / IS 2062) with provision for fixing 4 no. foundation bolts, This base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside. The octagonal Poles shall have lockable door of approximate 500 mm length at the elevation of 500 mm from the Base plate with bakelite sheet having 6A SP MCB and 16 sqmm stud type connector ( 4 nos) inside the pole at door opening for cable connection of following length and dimension as per <b>table P-01</b> with base plate and foundation bolt on the Existing cement concrete foundation. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>18.1.1</b>	<b>Poles with Octagonal Cross Section</b>		
18.1.1.1	3 Mtr.	Each	6361.0
18.1.1.2	4 Mtr.	Each	7806.0
18.1.1.3	5 Mtr.	Each	9588.0
18.1.1.4	6 Mtr.	Each	11164.0
18.1.1.5	7 Mtr.	Each	13152.0
18.1.1.6	8 Mtr.	Each	15141.0
18.1.1.7	9 Mtr.	Each	18981.0
18.1.1.8	10 Mtr.	Each	22823.0
18.1.1.9	11 Mtr.	Each	30725.0
18.1.1.10	12 Mtr.	Each	35453.0
18.2	Supply and Fixing of Pole OEM fabricated hot dipped galvanised M.S. Overhang (48.3 X 3.25 mm) with cap (400 x 88.9 / 114.3 x 3.25 mm) over the existing poles. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.2.1	Single arm overhang	Mtr.	1889.0
18.2.2	Double arm overhang	Mtr.	3314.0
18.3	Supply and erection of Galvanized Iron pole with galvanizing done in single dipping (Average coating thickness Minimum 65 Microns) Swaged tubular pole conforming to IS: 2713-1980 (part I to II) with galvanised base plate, The pole shall be made from steel tube & Pipe (IS:1141, Fe 410) including excavation of the pit and filling the same with C.C. of M-20 grade (1:1.5:3) from base plate to 50 cm above ground level, with the help of steel frame not less than 40 cm dia up to 114.3mm outer dia and 50 cm beyond 114.3mm outer dia around the pole. Duly finished with cement plaster, earthing terminals, cable entry with 32 mm dia. 'B' class GI cable sleeves complete as required. of following height & designation. ( See Table P - 02 for specs. ) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.3.1	7.5 Mtr. ( 410 SP - 5 )	Each	15419.0
18.3.2	8.5 Mtr. ( 410 SP - 17 )	Each	17098.0
18.3.3	9.0 Mtr. ( 410 SP - 28 )	Each	20938.0
18.3.4	10 Mtr. ( 410 SP - 42 )	Each	26675.0
18.3.5	11 Mtr. ( 410 SP - 51 )	Each	29898.0
18.3.6	12 Mtr. ( 410 SP - 60 )	Each	36827.0
18.4	Add for supply and fixing of Pole OEM fabricated Galvanized Overhang of following size over the existing poles. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work . refer Annexure "A" attached with this BSR .		
18.4.1	76.1 mm OD x 3.25 mm thickness	Mtr.	1748.0
18.4.2	88.9 mm OD x 3.25 mm thickness	Mtr.	2275.0
18.4.3	114.3 mm OD x 3.65 mm thickness	Mtr.	3167.0



Code No.	Description	Unit	Complete Rate
18.5	Supply and erection of Mild steel Swaged tubular pole conforming to IS: 2713-1980 (part I to II) with base plate, The pole shall be made from steel tube & Pipe (IS:1141, Fe 410) including excavation of the pit and filling the same with C.C. of M-20 grade (1:1.5:3) from base plate to 50 cm above ground level, with the help of steel frame not less than 40 cm dia up to 114.3mm outer dia and 50 cm beyond 114.3mm outer dia around the pole. Duly finished with cement plaster, earthing terminals, cable entry with 32 mm dia. 'B' class GI cable sleeves. After erection pole shall be painted with two coat of red oxide primer and two quote of enamel paint of silver colour as per the direction of Engineer incharge complete as required of following height & designation. ( See Table P - 02 for specs. ) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.5.1	7.5 Mtr. ( 410 SP - 5 )	Each	13102.0
18.5.2	8.5 Mtr. ( 410 SP - 17 )	Each	14499.0
18.5.3	9.0 Mtr. ( 410 SP - 28 )	Each	17666.0
18.5.4	10 Mtr. ( 410 SP - 42 )	Each	22384.0
18.5.5	11 Mtr. ( 410 SP - 51 )	Each	25045.0
18.5.6	12 Mtr. ( 410 SP - 60 )	Each	30739.0
18.6	Add for supply and fixing of Pole OEM fabricated Mild steel Overhang of following size over the existing poles, Overhang shall be painted with two coat of red oxide primer and two quote of enamel paint of silver colour as per the direction of Engineer incharge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.6.1	76.1 mm OD x 3.25 mm thickness	Mtr.	1490.0
18.6.2	88.9 mm OD x 3.25 mm thickness	Mtr.	2014.0
18.6.3	114.3 mm OD x 3.65 mm thickness	Mtr.	2813.0
18.7	Supply installation testing & Commissioning of high mast lighting system (as per PLG 07 of ILP UK technical report no 7 of ILE UK /IS:875 Part-1 – 2015//BSEN10025/and IS:2062 )consisting of totally hot dip galvanised by piecewise single dipped method high mast, lantern carriage suitable for up to 12 nos luminaries with welded arm (excluding luminaires), mast head frame assembly with full cover, including 1 No. LED 15 Watts aviation obstruction lights, double drum type self sustaining winch, integral power tool accesible from door with padlocking arrangement (winch motor with control circuit) hot dipped galvanised heavy duty pipe lightening finial, Stainless steel 6 mm dia. wire ropes (AISI 316, 7 / 19 costruction 3 no. rope for lantern carrage & 2 no. rope for winch assembly ) foundation bolt, torque limiter,EPR insulated PCP sheathed 5 core x 2.5 Sq.mm trailing cable, including outdoor type control panel for auto on / off, reverse / forward motor operation. The mast is constructed from mild steel plates (as per IS 5986 Gr. 510 ) cut and folded to form a polygonal section, telescopic jointed and welding as per BS 5135.etc. as required on Existing Foundation. ( See table P - 03 for specs.) OEM Must have Type test certificate for wind tunnel test . All as per pre approved by Engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.7.1	12.5 Mtr HM (in 2 section) suitable for 6 No. Luminaries 2 no. rope for lantern carrage & 2 no. rope for winch assembly	Each	225679.0
18.7.2	16.0 Mtr HM (in 2 section) suitable for 9 No. Luminaries	Each	287292.0
18.7.3	20.0 Mtr Hm (in 2 section) suitable for 12 No. Luminaries	Each	330476.0
18.7.4	25.0 Mtr HM (in 3 section) suitable for 12 No. Luminaries	Each	483603.0
18.7.5	30.0 Mtr HM (in 3 section) suitable for 12 No. Luminaries	Each	555287.0
18.8	Providing and Laying RCC Foundation for Octagonal / Conical Street Light poles, High mast Poles as per Drawing attach at Table P-4 with Following Procedure & All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .  A) Excavation of Pit for Foundation Size upto required depth from Ground level B) Dressing of Pit and Dry stone pitching 200 mm thick including supply of stones and preparing surface complete. C) Providing and laying in position cement concrete of M-10 grade of 75 mm thickness D) Reinforcement for R.C.C. work with TMT bars including straightening, cutting, bending, placing in position and binding all complete. E) Centring and shuttering including strutting , propping etc. and removal of form work for Footing and Pedestal F) Providing & Fixing of 2 no. Required Size PLB HDPE Pipe & Foundation Bolt with template as per OEM Recommendations. G) Providing and Laying Reinforce cement Concrete of M-25 grade in Footing and Pedestal including Curing the foundation for 7 days. H) Providing and Fixing Nosing Angle 40 mm x 40 mm x 6mm with 2 no. 100 mm long, 10 mm dia. Lugs on each face.		
18.8.1	Pole Foundation for Octagonal pole from 3 Mtr. To 6 Mtr.		5827.0
18.8.2	Pole Foundation for Octagonal pole from 7 Mtr. To 9 Mtr.		7943.0
18.8.3	Pole Foundation for Octagonal pole from 10 Mtr. To 12 Mtr.		11921.0

Code No.	Description	Unit	Complete Rate
18.9	Providing & Fixing of IP-65 Protected LED aviation obstruction light luminaire comprising of die cast aluminium alloy housing with Polycarbonate enclosure having more than 200 No's Low Power LED's having minimum power consumption 15 watts complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR		
18.9.1	aviation obstruction LED light luminaire Min. 15 Watts	Each	5494.0
18.10	Providing & Fixing of IK08 IP65 protected Top/Bottom mounted LED Post top Luminaire made of single piece construction powder coated die cast aluminium housing with UV stabilized Clear / frosted Polycarbonate diffuser and Aluminium anodised with sand blast reflector. The System level Luminous efficacy $\geq 100$ Lumen/W. SMD LEDs is to be used, System CRI>70, CCT: 3000/4000/6500 K. The integral electronic driver must be potted & has a unique BIS R number must be potted & has a unique BIS R number constant current and Internal/external surge protection device of min. 4KV(L-N) and efficiency > 85%, PF>0.9, THD<10% and input Voltage range of 140-270V AC at 50Hz. System life of 50000 Burning hours with 70% of Initial Lumens maintained . Driver current <750mA. Fixture must be in compliance with BIS Standards and Trade mark Certificate complete in all respect.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.10.1	Minimum lumen output 2500 lm Post top Luminaire	Each	5075.0
18.10.2	Minimum lumen output 3000 lm Post top Luminaire	Each	5703.0
18.10.3	Minimum lumen output 4000 lm Post top Luminaire	Each	6575.0
18.10.4	Minimum lumen output 4500 lm Post top Luminaire	Each	8195.0
18.11	Providing & Fixing of IK08 IP-66 protected high power LED flood light system with single piece Pressure diecast aluminium housing, toughened glass diffuser with suitable lenses on LED to achieve various beam angles, of high power LED of 3 to 5 watt each . Integrated potted driver as a unique BIS R number having efficiency more than 85 % and in compliance to BIS certified and Trade mark certificate. The System level Luminaire efficacy $\geq 125$ lm/ wt. LED driver Input Voltage AC 120 to 270 V AC with High voltage Cutoff $\geq 300$ V AC and Auto resetting Safety .Power Factor >0.95 , THD(I) <10% , driver current $\leq 750$ mA. driver should be Phase to phase protection of 440 V for 4 Hrs. Electrical Connector , Surge Protection Min $\geq 4$ KV internal and 10KV external but inside driver compartment, System life of 50000 Burning hours with 70% of Initial Lumens maintained, CRI>70 and CCT 5700K $\pm 355$ K. Manufactures Word Mark/Name Engraved/Embossing/Screen printing on die cast housing to allow traceability/authenticity. Fixture shall be IS 10322 Compliant.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.11.1	High Power LED Flood Light Minimum lumen output 3700 lm	Each	2659.00
18.11.2	High Power LED Flood Light Minimum lumen output 6200 lm	Each	3213.00
18.11.3	High Power LED Flood Light Minimum lumen output 8700 lm	Each	3739.00
18.11.4	High Power LED Flood Light Minimum lumen output 10000 lm	Each	4820.00
18.11.5	High Power LED Flood Light Minimum lumen output 12400 lm	Each	5900.00
18.11.6	High Power LED Flood Light Minimum lumen output 14800 lm	Each	8872.00
18.11.7	High Power LED Flood Light Minimum lumen output 18650 lm	Each	10857.00
18.11.8	High Power LED Flood Light Minimum lumen output 22400 lm	Each	13300.00
18.11.9	High Power LED Flood Light Minimum lumen output 25000 lm	Each	15583.00
18.11.10	High Power LED Flood Light Minimum lumen output 30000 lm	Each	18797.00
18.11.11	High Power LED Flood Light Minimum lumen output 37500 lm	Each	21457.00
18.11.12	High Power LED Flood Light Minimum lumen output 43750 lm	Each	27237.00
18.12	Providing & Fixing of IK08, IP 66 protected LED Street Light Luminaire on existing bracket/pole. Fixture made of powder coated single piece pressure die cast aluminum material with heat dissipation fins on housing with UV stabilized PC (UV stabilization report submitted for UV cover ) /Toughened Glass cover and secondary lens on each LED & should be SMD type of 3 to 5 watt each . The System efficacy $\geq 125$ lm/ wt and potted driver & has a unique BIS R number with Input Voltage AC 120 to 270 V AC with High voltage Cutoff $\geq 300$ V AC and Auto resetting Safety , Power Factor >0.95 driver Efficiency >85% ,THD(I) <10% Humidity 10% to 90% RH Working Temp -5C to 45C . driver current <750mA. The luminaire shall be BIS certified and Trade mark certified. Life Expectancy Equal or more than 50000 burning hrs with Minimum 70% lumen maintained , CRI >70 and CCT 5700K $\pm 355$ K. Surge protection shall be min $\geq 4$ KV internal and min 10 KV external inside driver compartment. driver should be Phase to phase protection of 440 V for 4 Hrs. Manufactures Word Mark/Name Engraved/Embossing on die cast housing to allow traceability/authenticity. Fixture shall be AS PER IS 10322 Compliant.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.12.1	LED Street Light fixture with Minimum lumen output 2450 lm	Each	2554.0

Code No.	Description	Unit	Complete Rate
18.12.2	LED Street Light fixture with Minimum lumen output 3700 lm	Each	3370.0
18.12.3	LED Street Light fixture with Minimum lumen output 5600 lm	Each	4145.0
18.12.4	LED Street Light fixture with Minimum lumen output 7500 lm	Each	4942.0
18.12.5	LED Street Light fixture with Minimum lumen output 8700 lm	Each	5847.0
18.12.6	LED Street Light fixture with Minimum lumen output 11225 lm	Each	6765.0
18.12.7	LED Street Light fixture with Minimum lumen output 12500 lm	Each	7670.0
18.12.8	LED Street Light fixture with Minimum lumen output 15000 lm	Each	8723.0
18.12.9	LED Street Light fixture with Minimum lumen output 17500 lm	Each	10532.0
18.12.10	LED Street Light fixture with Minimum lumen output 18750 lm	Each	11464.0
18.12.11	LED Street Light fixture with Minimum lumen output 22500 lm	Each	12963.0
18.12.12	LED Street Light fixture with Minimum lumen output 25000 lm	Each	14529.0
18.13	Providing & Fixing of IK10 IP65 protected 600 mm height LED Bollard Luminaire with base plate made of powder coated die cast aluminium housing with UV stabilized PC diffuser. The System level Luminous efficacy $\geq 90$ Lumen/W. SMD LEDs is to be used, System CRI $>70$ , CCT: 3000/4000/6500 K. The integral electronic driver must be potted & has a unique BIS R number must be potted & has a unique BIS R number constant current and Internal/external surge protection device of min. 4KV(L-N) and efficiency $> 85\%$ , PF $>0.9$ , THD $<20\%$ and input Voltage range of 90-270V AC at 50Hz. System life of 30000 Burning hours with 70% of Initial Lumens maintained Light output in Cool white or Warm White Colour as per engineers choice. driver current $<750$ mA. Fixture must be in compliance with BIS Standards and Trade mark Certificate complete in all respect.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.13.1	Minimum lumen output 800 lm Bollard	Each	9546.0
18.13.2	Minimum lumen output 980 lm Bollard	Each	11241.0
18.14	Providing & Fixing of IK10 IP66 / IP67 protected Rectangular shape LED Step Luminaire made of powder coated die cast aluminium housing with UV stabilized PC diffuser. The System level Luminous efficacy $\geq 90$ Lumen/W. SMD LEDs is to be used, System CRI $>70$ , CCT: 3000/4000/6500 K. The integral electronic driver must be potted & has a unique BIS R number constant current and Internal/external surge protection device of min. 4KV(L-N) and efficiency $> 85\%$ , PF $>0.9$ , THD $<10\%$ and input Voltage range of 140-270V AC at 50Hz. System life of 50000 Burning hours with 70% of Initial Lumens maintained . driver current $<750$ mA . Fixture must be in compliance with BIS Standards and Trade mark Certificate complete in all respect.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.14.1	Minimum lumen output 450 lm Step light	Each	3698.0
18.14.2	Minimum lumen output 630 lm Step light	Each	4508.0
18.14.3	Minimum lumen output 800 lm Step light	Each	4886.0
18.15	Providing & Fixing of IK10 IP65 / IP66 protected LED Up - Down Luminaire Wall / Surface mounting made of powder coated die cast aluminium housing with UV stabilized PC diffuser. The System level Luminous efficacy $\geq 90$ Lumen/W. COB LEDs is to be used, System CRI $>70$ , CCT: 3000/4000/6500 K. The integral electronic driver must be potted & has a unique BIS R number constant current and Internal/external surge protection device of min. 4KV(L-N) and efficiency $> 85\%$ , PF $>0.9$ , THD $<10\%$ and input Voltage range of 140-270V AC at 50Hz. System life of 50000 Burning hours with 70% of Initial Lumens maintained Light output in Cool white or Warm White Colour as per engineers choice. driver current $<750$ mA. Fixture must be in compliance with BIS Standards and Trade mark Certificate complete in all respect.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.15.1	Minimum lumen output 800 lm Up-Down Luminary	Each	6426.0
18.15.2	Minimum lumen output 1300 lm Up-Down Luminary	Each	8074.0
18.15.3	Minimum lumen output 2150 lm Up-Down Luminary	Each	9519.0
18.16	Providing and fixing of fuse box size 250(H) x 200(W) x 150(D) mm fabricated of 1.6mm MS sheet with hinged cover, dust and vermin proof, rubber gasket, locking arrangement, duly holded with 2 nos pole clamps of 20 mm x 3 mm flat with nut and bolts, complete with anticorrosive treatment, finished with two coat of approved enamel paint. The box shall be provided with 2 / 4 nos copper bus bar 125 x 20 x 3 mm with brass screws suitable supports,earth terminal, inter connection, knock outs for 20 / 25 mm cable gland, 1 no. 6 Amp MCB complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	2274.0

Code No.	Description	Unit	Complete Rate
18.17	Providing and fixing of IP 65 protected Polycarbonate / Polyester fuse box moulded with inside knock outs of following size with hinged cover, transparent window, PU gasket, locking arrangement, duly holded with 2 nos. pole clamps of 20 mm x 3 mm flat with nut and bolts, The box shall be provided with Din rail, 4 / 8 way 10.0 / 16.0 sq.mm heavy duty connector, earth terminal, complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR		
18.17.1	125 mm X 200 mm X 122 mm	Each	1827.0
18.17.2	160 mm X 225 mm X 100 mm	Each	2185.0
18.17.3	200 mm X 200 mm X 122 mm	Each	2854.0
18.17.4	225 mm X 225 mm X 100 mm	Each	3550.0
18.18	Providing & Fixing of Street light bracket made out from following size of ' B ' class , Medium class G.I. Pipe conforming to IS : 1239 P - 1 ( 2004 ) with heavy duty pole clamp, Saddles suitable fastners etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work . refer Annexure "A" attached with this BSR .		
18.18.1	20 mm Dia.	Mtr.	405.0
18.18.2	25 mm Dia.	Mtr.	540.0
18.18.3	32 mm Dia.	Mtr.	742.0
18.18.4	40 mm Dia.	Mtr.	958.0
18.19	Providing & Fixing of IP - 65 protected impact resistant polycarbonate / Polyester enclosures with knock out for cable entry/out including fixing with nut, bolt, fatner etc as required complete in all respect of following sizes.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.19.1	180 x 180 x 91 mm	Each	1498.0
18.19.2	250 x 200 x 115 mm	Each	2174.0
18.19.3	300 x 450 x 132 mm	Each	3450.0
18.19.4	320 x 440 x 179 mm	Each	4982.0
18.19.5	320 x 640 x 179 mm	Each	6616.0
18.20	Supply and erection of PU coated , 6 to 7 mm thick Glass / Fibre Reinforced Pole (GRP /FRP) made by CNC filament winding machine using thermoset resin polyester/epoxy resin system) having minimum 62% glass content. designed to withstand the maximum wind speed as per IS 875, and Tested for deflection not more than 15% length of pole as per ASTM D 4923, The pole should be in one piece and tapered round in shape, pole shafts shall be provided with FRP Anchor with suitable MS cated Base with provision for fixing 4 no. foundation bolts( Including cost of Foundation Bolt), The Pole shall have lockable door of approximate 500 mm length at the elevation of 500 mm from the Base plate with bakelite sheet having 6A SP MCB and 16 sqmm stud type connector ( 4 nos) inside the pole at door opening for cable connection of following length and dimension on Existing cement concrete foundation. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.20.1	3 Mtr. Long, Top/ Bottom OD Dia 89/126mm ± 2mm approx. With Base 250X250 X 10mm	Each	16910.00
18.20.2	4 Mtr. Long, Top/ Bottom OD Dia 89/131mm ± 2mm approx. With Base 250X250 X 10mm	Each	20672.00
18.20.3	5 Mtr. Long, Top/ Bottom OD Dia 89/141mm ± 2mm approx. With Base 250X250 X 10mm	Each	22091.00
18.20.4	6 Mtr. Long, Top/ Bottom OD Dia 89/152mm ± 2mm approx. With Base 250X250 X 10mm	Each	23796.00
18.20.5	7 Mtr. Long, Top/ Bottom OD Dia 89/157mm ± 2mm approx. With Base 300X300 X 12mm	Each	29036.00
18.20.6	8 Mtr. Long, Top/ Bottom OD Dia 89/157mm ± 2mm approx. With Base 300X300 X 12mm	Each	31280.00
18.20.7	9 Mtr. Long, Top/ Bottom OD Dia 89/183mm ± 2mm approx. With Base 300X300 X 12mm	Each	33160.00
18.20.8	10 Mtr. Long, Top/ Bottom OD Dia 89/207mm ± 2mm approx. With Base 350X350 X 15mm	Each	42052.00
18.20.9	11 Mtr. Long, Top/ Bottom OD Dia 89/217mm ± 2mm approx. With Base 350X350 X 15mm	Each	44246.00
18.20.10	12 Mtr. Long, Top/ Bottom OD Dia 89/226mm ± 2mm approx. With Base 400X400 X 20mm	Each	53300.00
18.21	Supply, Erection and Fixing of GRP Overhang with cap over the existing poles. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
18.21.1	Single arm overhang	Mtr.	4318.00
18.21.2	Double arm overhang	Mtr.	6168.00

Table P- 01
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GI octagonal pole Standard Dimensions	
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[illegible]

**Table P - 02**

**Swaged Tubular pole as per IS : 2713 P - I, II 1980**

S.No.	Pole Designation	Over all length ( Mtr. )	Base Plate Size	Planting Depth ( Mtr. )	Length of sections			Outside dia. & thickness of sections			Approx. Wt. of Pole ( Including Base Plate)
					Bottom	Middle	Top				
					h1	h2	h3				
1	410 SP - 5	7.5	300 x 300 x 5 mm	1.25	4.5	1.50	1.50	114.3 x 4.5	88.9 x 4.05	76.1 x 3.25	3.52 Kg + 79 Kg
2	410 SP - 17	8.5	300 x 300 x 5 mm	1.50	5.0	1.75	1.75	114.3 x 4.5	88.9 x 4.05	76.1 x 3.25	3.52 Kg + 89 Kg
3	410 SP - 28	9.0	300 x 300 x 5 mm	1.50	5.0	2.0	2.0	139.7 x 4.5	114.3 x 3.65	88.9 x 3.25	3.52 Kg + 113 Kg
4	410 SP - 42	10.0	400 x 400 x 7 mm	1.8	5.2	2.4	2.4	139.7 x 5.4	114.3 x 4.5	88.9 x 3.25	8.8 Kg + 144 Kg
5	410 SP - 51	11	400 x 400 x 7 mm	1.8	5.6	2.7	2.7	139.7 x 5.4	114.3 x 5.4	88.9 x 3.25	8.8 Kg + 164 Kg
6	410 SP - 60	12	400 x 400 x 7 mm	2	5.8	3.1	3.1	165.1 x 5.4	139.7 x 4.5	114.3 x 3.65	8.8 Kg + 208 Kg

**Table P - 03**

**High mast suitable for 2 / 3 point suspension system of lantern carriage for wind speed up to 180 Km / Hour**

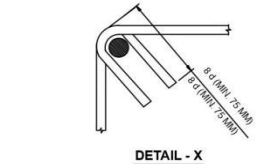
Height of Mast	Unit	30 Mtr.	25 Mtr.	20 Mtr.	16 Mtr.	12.5 Mtr.
Material Construction		IS 2062 grade E350 / BS EN 10025 or Equivalent having minimum yield strength of 350 N/Sq. mm	IS 2062 grade E350 / BS EN 10025 or Equivalent having minimum yield strength of 350 N/Sq. mm	IS 2062 grade E350 / BS EN 10025 or Equivalent having minimum yield strength of 350 N/Sq. mm	IS 2062 grade E350 / BS EN 10025 or Equivalent having minimum yield strength of 350 N/Sq. mm	IS 2062 grade E350 / BS EN 10025 or Equivalent having minimum yield strength of 350 N/Sq. mm
No. of Longitude Welds	No.	Single	Single	Single	Single	Single
Top/ Bottom (diameter of High Mast)	mm.	150/540	150/540	150/410	150/410	150/360
Cross section of Mast polygone ( No. of Sides)	No.	20 Sides	20 Sides	20 Sides	20 Sides	20 Sides
Nos. of Section of Mast	No.	3	3	2	2	2
Thickness of Section	MM	3-4-5	3-4-5	3-4	3-4	3-3
Thickness of Galvanisations (Min.)	Micron	As per BSEN ISO 1461 (For Steel $\leq$ 3 mm- 55 Microns & For Steel > 3mm to $\leq$ 6 mm - 70 Microns)	As per BSEN ISO 1461 (For Steel $\leq$ 3 mm- 55 Microns & For Steel > 3mm to $\leq$ 6 mm - 70 Microns)	As per BSEN ISO 1461 (For Steel $\leq$ 3 mm - 55 Microns)	As per BSEN ISO 1461 (For Steel $\leq$ 3 mm - 55 Microns)	As per BSEN ISO 1461 (For Steel $\leq$ 3 mm - 55 Microns)
Size of Base Plate (Min.)	MM	730	730	590	570	520
Thickness of Base Plate (Min.)	MM	30	30	25	25	20
Foundation Bolts						
Nos of Bolts	No.	12	12	8	8	6
PCD of Foundation	MM	635	635	500	490	445
Bolt Diameter/Grade/Tensile Strength	MM	30X1200/ EN 8 Grade Minimum tensile strength 600 N/mm2	30X1200/ EN 8 Grade Minimum tensile strength 600 N/mm2	30X850/ EN 8 Grade Minimum tensile strength 600 N/mm2	24X850/ EN 8 Grade Minimum tensile strength 600 N/mm2	24X850/ EN 8 Grade Minimum tensile strength 600 N/mm2
Lantern Carriage (No. of Half)	No.	2	2	2	2	2
Material of construction of LC/Lantern carrigae finish		50 NB ERW Class A - M. S. Pipe	50 NB ERW Class A - M. S. Pipe	50 NB ERW Class A - M. S. Pipe	50 NB ERW Class A - M. S. Pipe	40 NB ERW Class A - M. S. Pipe
Lantern Carriage ( No of Arms)	No.	9	9	6	6	6

**Table P - 03****High mast suitable for 2 / 3 point suspension system of lantern carriage for wind speed up to 180 Km / Hour**

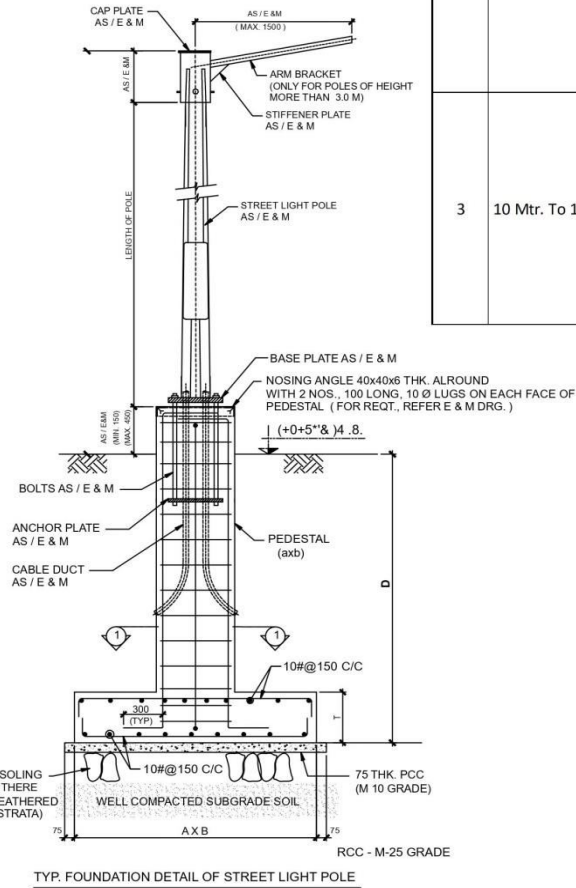
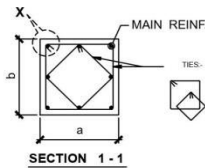
Height of Mast	Unit	30 Mtr.	25 Mtr.	20 Mtr.	16 Mtr.	12.5 Mtr.
Lantern Carriage Minimum Inner Dia	mm	711	535	535	535	450
Lantern Carriage Minimum Length of Arms	mm	600	600	600	600	500
Hardwares		Less than 10 mm stainless steel AISI 304 & 12 mm above hot dip galvanized	Less than 10 mm stainless steel AISI 304 & 12 mm above hot dip galvanized	Less than 10 mm stainless steel AISI 304 & 12 mm above hot dip galvanized	Less than 10 mm stainless steel AISI 304 & 12 mm above hot dip galvanized	Less than 10 mm stainless steel AISI 304 & 12 mm above hot dip galvanized
Nos of fittings LED 400W	No.	12	12	9	8	6
Winch						
Nos. of Drum	Drum/Winch	2	2	2	2	2
Capacity (Min.)	Kg.	SWL 750	SWL 750	SWL 500	SWL 350	SWL 250
Wire Rope (Nos./Thickness)	Nos. (MM)	3/6mm, AISI 316	3/6mm, AISI 316	3/6mm, AISI 316	3/6mm, AISI 304	2/6mm, AISI 304
Input Supply/Power tool /Torque Limitor		415V , 3 Phase/ (Reversible with Plate arrangement for adjusting the tension in the coupling chain between motor & winch/Mechanical	415V , 3 Phase/ (Reversible with Plate arrangement for adjusting the tension in the coupling chain between motor & winch/Mechanical	415V , 3 Phase/ (Reversible with Plate arrangement for adjusting the tension in the coupling chain between motor & winch/Mechanical	415V , 3 Phase/ (Reversible with Plate arrangement for adjusting the tension in the coupling chain between motor & winch/Mechanical	415V , 3 Phase/ (Reversible with Plate arrangement for adjusting the tension in the coupling chain between motor & winch/Mechanical
Cable Connectors (Plug & Socket)		6 Pin Male/Female Connectors	6 Pin Male/Female Connectors	6 Pin Male/Female Connectors	5 Pin Male/Female Connectors	5 Pin Male/Female Connectors
Motor	HP	1.5 HP	1.5 HP	1.0 HP	1.0 HP	1.0 HP
Trailing Cable ( Condcutor/Type/Size)		Copper/EPR insulated PCP scheathed cotton braided/5CX4.0 sqmm	Copper/EPR insulated PCP scheathed cotton braided/5CX4.0 sqmm	Copper/EPR insulated PCP scheathed cotton braided/5CX4.0 sqmm	Copper/EPR insulated PCP scheathed cotton braided/5CX4.0 sqmm	Copper/EPR insulated PCP scheathed cotton braided/5CX2.5 sqmm



# OCTAGONAL / CONICAL POLE FOUNDATION DRAWING



DETAIL - X



STRUCTURAL DETAILS OF STREET LIGHT POLES

Sl. No.	Length of Pole		
1	3 Mtr. To 6 Mtr.	Foundation Depth w.r.t Finished Ground level	800 mm
		Footings	RCC Size A x B 700mm x 700 mm
			Thickness (T) 250 mm
		Pedestal	Size a x b 300 mm x 300 mm
			Main Reinf. 4 - 16 #
			Ties 8 # @ 150 c/c
2	7 Mtr. To 9 Mtr.	Foundation Depth w.r.t Finished Ground level	1000 mm
		Footings	RCC Size A x B 900mm x 900 mm
			Thickness (T) 300 mm
		Pedestal	Size a x b 350 mm x 350 mm
			Main Reinf. 4 - 16 # + 4 - 12 #
			Ties 8 # @ 150 c/c
3	10 Mtr. To 12 Mtr.	Foundation Depth w.r.t Finished Ground level	1250 mm
		Footings	RCC Size A x B 1100mm x 1100 mm
			Thickness (T) 350 mm
		Pedestal	Size a x b 400 mm x 400 mm
			Main Reinf. 4 - 16 # + 4 - 12 #
			Ties 8 # @ 150 c/c

Table P- 04

## Chapter E - 19

### Over Head Lines

Code No.	Description	Unit	Complete Rate
19.1	Supply and erection of P.C.C. pole as per REC manual no 15/1979 (ammended upto date) and as per latest Discom specifications with factor of safety 2.5 including excavation of pit upto pole planting depth 1/6th of pole length. and back filling with stone aggregate/boulders and soil by ramming and watering etc complete as required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.1.1	8.0 Mtr long PCC pole of 200 Kg Working Load	Each	3343.0
19.1.2	9.0 Mtr long PCC pole of 200 Kg Working Load	Each	5037.0
19.1.3	9.0 Mtr long PCC pole of 400 Kg Working Load	Each	5918.0
19.1.4	11.0 Mtr long PCC pole of 400 Kg Working Load	Each	7177.0
19.2	Supply and erection of GI stay set confirming to pattern-1 of BS:16/1974 and as per latest Discom Specifications complete with stay rod with anchor plate fitted with cast iron cross head and steel bow, in cement concrete 1:3:6 including excavation of pit-re-filling etc complete as reqd. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.2.1	Stay set of dia 20mm, 2.4m long stay rod and anchor plate 380 x 380 x 4.0 mm	Each	1358.0
19.2.2	Stay set of dia 16mm, 1.8m long stay rod and anchor plate 300 x 300 x 4.0 mm	Each	836.0
19.3	Supply and fixing of following LT Supporting accessories with nut bolt & Clamps made out as per standard Discom's specifications with two coats of Red oxide and two coats of Aluminium paint etc. as required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.3.1	LT cross arm 600 mm long with clamp	Each	460.0
19.3.2	LT cross arm 1200 mm long with clamp	Each	787.0
19.3.3	Suspension clamp with eye hook & Pole clamp	Each	527.0
19.3.4	Dead end clamp with eye hook & Pole clamp	Each	612.0
19.3.5	Type A LT connector for Aerial bunched cable	Each	71.0
19.3.6	Type B LT connector for Aerial bunched cable	Each	55.0

Code No.	Description	Unit	Complete Rate
19.4	Supply and fixing of LT porcelain pin insulator as per IS 1445-1997 and as per Discom's standard specifications, suitable for working voltage 1100 volts including all accessories like MS Forged GI LT Pin confirming to IS:7935/1975 (latest amended) Nut, Bolt etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.4.1	100 mm x 70 mm	Each	107.0
19.5	Supply and fixing of LT porcelain shackle insulator as per IS:1443 1979 and as per Discom's standard specifications, suitable for working voltage 1100 volts including all accessories like GI Hardware fittings confirming to IS:7935/1975 (latest amended) Nut, Bolt etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.5.1	75mm x 90mm	Each	109.0
19.5.2	100mm x 110mm	Each	119.0
19.6	Supplying and drawing overhead steel core Aluminium conductor (ACSR) ISI marked (IS 398 part II-1996) on existing cross arms through insulator with all necessary T&P required including binding and twisting etc. complete in all respect as required. All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.6.1	30 Sqmm of (6+1) 2.59mm (Weasel)	Mtr.	40.0
19.6.2	50 Sqmm of (6+1) 3.35 mm (Rabbit)	Mtr.	60.0
19.6.3	50 Sqmm of (6+1) 3.35 mm (Insulated Rabbit) for LT	Mtr.	92.0
19.6.4	80 Sqmm of (6+1) 4.09 mm (Raccon)	Mtr.	96.0
19.6.5	100 sqmm of (6/4.72 mm+1/1.57 mm) (Dog)	Mtr.	117.0
19.6.6	ACSR Panther Aluminium 30/3 MM	Mtr.	218.0
19.6.7	AAA Conductor (Equivalent size Weasel)	Mtr.	38.0
19.7	Supply and fixing of 'V' type cross arms with top hamper and clamps as per latest Discom specifications made of MS angle on the existing poles complete including all necessary nut and bolt, clamps with two coats of Red oxide and two coats of Aluminium paint etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		1417.0
19.8	Supply and fixing of top hamper on the existing pole as per latest Discom specifications complete including nut bolts with two coats of Red oxide and two coats of Aluminium paint etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
<b>19.8.1</b>	<b>Vertical type</b>		
19.8.1.1	11 kV (.7m long) (65 x 65 x 6mm angle)	Each	275.0

Code No.	Description	Unit	Complete Rate
19.8.1.2	11 kV(50 x 6 mm flat)	Each	194.0
<b>19.8.2</b>	<b>Horizontal type</b>		
19.8.2.1	11 kV (65 x 65 x 6mm angle)	Each	222.0
19.8.2.2	11 kV with double top hamper (65 x 65 x 6mm angle)	Each	285.0
19.9	Supply and fixing of MS. Channel Bracket with clamp as per Discom Specifications including Nut, Bolt with two coats of Red oxide and two coats of Aluminium paint etc. as Required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.9.1	1.8 Mtr. Long	Each	1929.0
19.9.2	1.4 Mtr. Long	Each	1676.0
19.10	Supply and fixing of 11 kV pin insulator confirming to IS:731:1971 with latest ammendment on existing bracket including all accessories like MS forged hot dipped GI Pin confirming to IS 2486(Part-I)/1993 & IS:2486 (Part-II)/1989 with latest ammendment, and as per latest Discom specs. etc. as required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR	Each	175.0
19.11	Supply and fixing of 11kV Disc insulator and Hot dipped galvanized Hardware confirming to IS:731:1971 with latest ammendment and as per latest Discom Specs. on existing bracket including all accessories etc. as required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.11.1	B & S type hardware 45 KN	Each	640.0
19.11.2	T & C type hardware 45 KN	Each	204.0
19.11.3	B & S disc insulator 45 KN	Each	374.0
19.11.4	T & C disc insulator 45 KN	Each	350.0
19.12	Supply and fixing of PG / T clamps on overhead lines/jumpers, made of aluminium alloy 4600 of IS 617-1994 (with latest ammendment if any) with steel nut and bolts conforming to IS 1363-1992 & IS 1367/1979-80 (with latest ammendments if any) all ferrous metal parts intended for outdoor use except those made of stainless steel shall be protected by hotdip galvanising in accordance with IS 2633-1986 complete in all respect as required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.12.1	PG Clamp for Panther Conductor	Each	373.5
19.12.2	PG Clamp for Dog Conductor Type - A	Each	294.9
19.12.3	PG Clamp for Weasel Conductor	Each	94.8
19.12.4	PG Clamp for Rabbit Conductor	Each	83.6
19.12.5	T Clamp for Panther Conductor	Each	420.6

Code No.	Description	Unit	Complete Rate
19.13	Supplying and laying of Hot dip galvanized steel stay wire of 550-900 N/mm Quality confirming to IS-2141/2000 in all respect Including chemical composition (Heavily coated Hard quality) of dia 7/3.15 mm(7/10 SWG) and as per latest Discom specs. etc. as required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR	Mtr	114.7
19.14	Supply and fixing of 11 / 33. KV Stay insulator as per IS:5300/1969 and as per Discom's standard specifications etc. as required. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.14.1	110 x 75 x 22mm 11 KV Stay Insulator	Set	44.5
19.14.2	140 x 85 x 25mm 33 KV Stay Insulator	Set	69.5
19.15	Supply and fixing of LT Distribution Kiosk confirming to IS:13947/1993/ IEC 60947 Pt.3 amended up-to-date and as per DISCOM specifications made of 2 mm thick powder coated CRCA sheet of 415 volts 3 phase 4 wire triple pole and neutral type, complete in all respect as required. Including Incoming Switch Disconnecter Fuse unit, Aluminium Busbar with copper one piece U contacts base, brass studs and nuts, copper busbar for main and interconnection, MS Channel frame of 75 mm x 40 mm grouted with C.C. of M-10 grade to achieve the height of 1.5 feet above the road level suitable for required no. outgoing. All as per pre approved by Engineer in charge.For additional technical parameters of product / work refer Annexure 'A' attached with this BSR		
19.15.1	200 Amp. LT Distribution Kiosk for 63/100 KVA Transformer	Each	37639.0
19.15.2	400 Amp. LT Distribution Kiosk for 250/315 KVA Transformer	Each	64700.0
19.15.3	100 Amp. Distribution Kiosk suitable for Underground cable of Size 500mm x 550 mm x 700 mm	Each	23390.0
19.16	Supply and fixing of 11 KV Outdoor 4 way feeder pillar Box confirming to Discom specifications and made of 3.15 mm thick powder coated CRCA sheet enclosure confirming to IS 14772/IEC 60670 (1989) of Size 1000 mm x 1000 mm x 1500 mm, Both front and rear doors should have 3 heavy duty M.S. hinges with Brass pin inserted inside and locking arrangements.The bottom foundation frame stand should be made from 65x65x6mm MS Angle with four legs of 200mm height provided with 150x150x6mm flats grouted with C.C. of M-10 grade to achieve the height of 2.0 feet above the road level suitable for four outgoing. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	60098.0

Code No.	Description	Unit	Complete Rate
19.17	Supply and fixing of 100 Amp, 11kV Horn gap fuse set IS 9385 on existing DP structure with 6 nos 24kV/22kV post insulator (IS:5350 part III), hot dipped hard ware, fuse wire of required size etc. complete in all respect as per Discom specification etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	9071.0
19.18	Supply and fixing of 11kV, 400 Amp 3 pole, central pot rotating double break type isolator (IS:9921 part I to V) without earth blade operating mechanism with GI spring loaded reverse loop type fixed contact, solid hard drawn electrolytic copper tubular moving contact with silver/ nickel plated at end points, 9 nos post insulator of 12 kV (IS:2554 & IS 5350 part III), hot dipped galvanising hard ware, nut, bolts etc complete in all respect as per Discom specification etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	22632.0
19.19	Supply and fixing of distribution type Lightning arrestor ( Set of 3 Nos.) 9 kV, 10 kA (IS:3070) with mounting breaking to be installed on existing DP structure etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Set	5583.0
19.20	Supply and fixing Substation structure for mounting 11/0.4 Kv Transformer on Double pole as per DISCOM specification complete in all respect as required including nuts and bolts etc (excluding the cost of poles) made of MS channel of 4 nos 100 x 50 x 6mm and 4 nos 75 x 40 x 6mm and MS flat 50 x 6mm etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	18245.0
19.21	Supply and fixing of 1.6 mm thick MS 11 kV Danger plates as per IS :2551-1982 & specification of Discom on the existing poles complete in all respect as required. All as per pre approved by Engineer in charge. For additional technical parameters of product / work refer Annexure 'A' attached with this BSR	Each	308.0

Code No.	Description	Unit	Complete Rate
19.22	Providing and fixing of single pole mounted substation structure set for isolator / single phase transformer as per DISCOM specification complete in all respect with nuts and bolts as required MS flat 50 x 6mm, MS angle 65 x 65 x6mm, MS channel 100 x 50 x 6mm. ( Excluding cost of pole ). Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	3539.0
19.23	Supply and erection of RS joist of 116 x 100 mm, 11 Meter long with the welded/ bolted top hamper 65 x 65 x 6mm (0.7 Mtr long) making necessary arrangement for fixing 11 kV 'V' cross arm, LT bracket and guard wire bracket, grouted in ground 1/6 th of its length and fixed with cement, coarse and grit in 1:3:6 ratio in 1/5th of its length (40cm dia) from the bottom including two coats of aluminium paint over the complete length of joist etc. as required. (Excavation of pit PCC and CC foundation as per Discom specs. to be Paid Extra) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	24427.0
19.24	Supplying and drawing of XLPE insulated LT Aerial bunched Aluminium conductor cable confirming to IS 14255/1995 and IS 398 (Pt-4)/ 1994 and as per Discom Specs. on existing cross arms through I hook with all necessary T&P required including binding and twisting etc. complete in all respect as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
19.24.1	1 X 25 sq. mm. + 1X25 sq. mm. (Bared)	Mtr	58.0
19.24.2	1 X 25 sq. mm. + 1X25 sq. mm. (insulated)	Mtr	63.0
19.24.3	3 X 16 sq. mm. + 1X25 sq. mm. (Bared)	Mtr	82.0
19.24.4	3 X 16 sq. mm. + 1X25 sq. mm. (insulated)	Mtr	89.0
19.24.5	3 X 25 sq. mm. + 1X25 sq. mm. (Bared)	Mtr	113.0
19.24.6	3 X 25 sq. mm. + 1X25 sq. mm. (insulated)	Mtr	123.0
19.24.7	3 X 50 sq. mm. + 1X35 sq. mm. (Bared)	Mtr	190.0
19.25	Supply & Erection of M S lattice structure of height 12.8 mtr as per DISCOMs approved design & details in alignment, including painting of tower of approved make two coat of red oxide paint and one coat of aluminium paint before installation and one coat of Aluminium paint after erection work completed as per technical specifications & drawing of DISCOM. (Excavation of pit PCC and CC foundation as per Discom specs. to be Paid Extra). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	57638.0

Code No.	Description	Unit	Complete Rate
19.26	Supply & Erection of M S lattice structure of height 11.0 mtr as per DISCOMs approved design & details in alignment, including painting of tower of approved make two coat of red oxide paint and one coat of aluminium paint before installation and one coat of Aluminium paint after erection work completed as per technical specifications & drawing of DISCOM. (Excavation of pit PCC and CC foundation as per Discom specs. to be Paid Extra) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	46560.0
19.27	Supply of Fabricated 33 KV of 'V' type cross arms as per Discom specifications made of MS channel 100x50 ISMC (9.5Kg. Per Mtr.) on the existing poles complete including all necessary nut and bolt etc with clamps including two coats of Red oxide and two coats of Aluminium paint etc. as Required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	2340.0
19.28	Supply and fixing of top hamper as per Discom specifications on the existing pole complete including nut bolts etc as required. Vertical type 33 kV. 0.75mtr. IS 75x75x6mm as per tech specs. Of DISCOM (Steel weight 6.5Kg. Approx. per top hamper). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	405.0
19.29	Supply & Erection of special stud structure for 33KV lattice structure as per Discom specifications made of M.S. angle, channer, flats complete in all respects with bracings including painting of tower of approved make two coat of red oxide paint and one coat of aluminium paint before installation and one coat of Aluminium paint after erection work completed as per technical specifications & drawing of DISCOM. (Excavation of pit PCC and CC foundation as per Discom specs. to be Paid Extra). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	25434.0
19.30	Supply and fixing of 33 kV pin insulator confirming to IS:731:1971 with latest ammendment on existing bracket including all accessories like MS forged hot dipped GI Pin confirming to IS 2486(Part-I)/1993 & IS:2486 (Part-II)/1989 with latest amendment, and as per latest Discom specs. etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	510.0



Code No.	Description	Unit	Complete Rate
19.31	Supply and fixing of 33kV Disc insulator and Hot dipped galvanized Hardware confirming to IS:731:1971 with latest ammendment and as per latest Discom Specs. on existing bracket including all accessories etc. as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
19.31.1	B & S type hardware 120KN	Each	984.0
19.31.2	B & S disc insulator 120KN	Each	1139.0
19.32	Supply and fixing of guard bracket 2.2 mtr. long made from (75x40) ISMC 7.14Kg. Per Mtr. M.S. channel including necessary clamp and botls etc. as per technical specification & drawing of DISCOM. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1456.0
19.33	Supply and fixing M.S. channel (cut point) 100x50mm ISMC (9.5Kg. Per Mtr.) 2x1.8mtr. long with pilot patti 50x6mm thick necessary nuts and bolts etc. as per technical specification & drawing of DISCOM. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	3644.0
19.34	Supply and installation of spike of M.S. rod 20mm dia 3.0mtr. long for earthing of (tower/pole) drive into earth by mechanical means sturcture connection the spike with cross arm top hamper PCC pole, lattics tower to earth etc. complete as per technical specification of DISCOM.	Each	1819.0
19.35	Labour charges for Dismantling the structure with pole mounted transformer different capacity along with distribution boards and re- erecting the transformer in the structure to be newly erected along with distribution boards and erecting testing, testing and commissioning (as well as cabling)	Job	3183.0
19.36	Labour charges for Dismantling of existing electric poles (PCC poles, MS channel, Lattic tower 12.6mtr. , 11 mtr. along with the ACSR Conductors, 11KV/33KV/LT line etc. 11KV insulator LT insulator guard wires, staywires and other electric items of the pole coming along the alignment of the road and removal and re-rolling PCC pole, MS channel different sizes as well as handing over the same to DISCOM store including transportation from site to store and stacking of dismantling material in store and as per the direction of Engineer Incharge and clean the site good as per the requirement and submit the receipt from DISCOM/ concentering authority, including all complete works.	job	1203.0

<b>Code No.</b>	<b>Description</b>	<b>Unit</b>	<b>Complete Rate</b>
19.37	Labour charges for Dismantling of following existing street light electric poles with street light fixtures, underground cable, MS box and other electric items of the pole coming along the alignment of the road and removal and re- rolling MS poles/PCC poles of different sizes as well as handing over the same to DISCOM/UIT/MC store and as per the direction of Engineer Incharge and clean the site good as per the requirement and submit the receipt from concering authority, all complete works.	Job	528.0

## Chapter E - 20

### Local Area Networking

Code No.	Description	Unit	Complete Rate
20.1	Supply, Drawing and Testing of 4 pair, 23 AWG Solid Bare Copper wire insulated with PVC, UTP (Unshielded Twisted Pair), Category 6, Class E, 100 Ohm Impedance, Indoor Cable as per latest ammendments of ANSI/TIA/EIA-568 , The copper conductors should be balanced twisted in pairs, seperated by a cross-member fluted pair divider & protected by PVC Jacket. Certified performance in a 4-connector configuration upto 100 Mtrs channel requirements & transmission frequencies up to 250 Mhz. in existing MS/PVC Conduits/casing capping including making connections to Information outlets and Patch Panels with jack & ferruling at both ends for identification with necessary tools for punching, stripping, crimping and testing etc as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Mtr.	49.00
20.2	Supply, Drawing and Testing of 4 pair, 23 AWG Solid Bare Copper wire insulated with HDPE, <b>U/UTP (Unscreened/Unshielded Twisted Pair), Category 6</b> , Class E, 100 Ohm Impedance, <b>Outdoor</b> Cable as per latest ammendments of ANSI/TIA/EIA-568 C.2 & ISO/IEC 11801 2nd Ed, The copper conductors should be balanced twisted in pairs, seperated by a cross divider & protected by LSZH PVC outer jacket of UV resistant. Certified performance in a 4-connector configuration upto 100 Mtrs channel requirements & transmission frequencies up to 250 Mhz. Should meet IEEE 802.3af & IEEE 802.3at for POE applications. Cable Should support Ethernet 10GBASE-T according to the standards. in existing MS/PVC Conduits/casing capping including making connections to Information outlets and Patch Panels with jack & ferruling at both ends for identification with necessary tools for punching, stripping, crimping and testing etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Mtr.	83.00
20.3	Supply, Drawing and Testing of 4 pair, 23 AWG Solid Bare Copper wire insulated with HDPE, <b>Category 6A/Class Ea, U/FTP (Unscreened/Foiled Twisted Pair)</b> , 100 Ohm Impedance, <b>Indoor</b> Cable as per latest ammendments of ANSI/TIA/EIA-568 C.2 & ISO/IEC 11801 2nd Ed, The copper conductors should be balanced twisted in pairs, Unscreened and Aluminum Foil Sheilding of Individual pairs protected by a Low Smoke Zero Halogen (LSZH)(IEC 60332-1) Jacket. Certified performance in a 4-connector configuration upto 100 Mtrs channel requirements & transmission frequencies up to 500 Mhz. Should meet IEEE 802.3af & IEEE 802.3at for POE applications. Cable Should support Ethernet 10GBASE-T according to the standards. in existing MS/PVC Conduits/casing capping including making connections to Information outlets and Patch Panels with jack & ferruling at both ends for identification with necessary tools for punching, stripping, crimping and testing etc as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Mtr.	95.00
20.4	Supply and Installation of unshielded/360 degree sheilded Information outlets made of high impact plastic body with ABS, FR Grade halogen free material with provision for protection against dust in jack, suitable for Cat 6/6A application complying to latest ammendments, According. to Cat. 6/6A channel, It should support channel as well as components requirements of Cat.6/6A standards at frequencies of up to 250 to 500 Mhz. Cat 6/6A unshielded/shielded Jack should be suitable to terminate 4 pair, 23/24 AWG solid/stranded wire diameters, using 100 Ohm unshielded/shielded balance twisted pair cable, the jack should have tooless/impact termination on reliable copper tin plated Insulation displacement contact, with easy lock mechanism, It supports IEC 60603-7-4 and complied with ANSI/TIA/EIA 568 C.2 standard. jack should be RJ11,RJ12 & RJ45 compatible. Should support Ethernet 1.2 Gb/s ATM,Digital video and broadband/baseband analog video, Voice over internet protocol (VOIP) Specifications in existing modular/MS Boxes along with necessary connections as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		

Code No.	Description	Unit	Complete Rate
20.4.1	Cat 6, Un-shielded Information Outlet	Each	398.00
20.4.2	Cat 6A, Shielded Information Outlet	Each	580.00
20.5	Supply & fixing of square Faceplate for Flush / Surface Mount Information Outlets Single/Dual or Quad Aperture , material should be PC+ABS body, Suitable for RJ45 unshielded/shielded connection modules. Should match with I. O. OEM. Dimensions should be 86mm X 86mm as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR		
20.5.1	Single Aperture	Each	81.00
20.5.2	Dual Aperture	Each	101.00
20.5.3	Quad Aperture	Each	121.00
20.6	Supply, Installation, Testing and Commissioning of Rack mounted 19" 1U, Cat6 24 Port <b>loaded</b> , 1.5-1.6 MM CRS chasis, powder coated, sheet steel, made of plastic (ABS), Modular Patch Panels with Rear Cable management system and mounting hardware to mount the patch panel. Should have port identification numbers printed/engraved on front of the panel. Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.6.1	Modular Patch Panel Loaded with Cat -6 I/O	Each	8765.00
20.6.2	Modular Patch Panel Loaded with Cat -6A I/O	Each	12817.00
20.7	Supply , Installation and Testing of 4 pair, 100 Ohm impedance, Cat 6/6A /Class E/Ea <b>patch cords</b> should be constructed of minimum 23/24 AWG, stranded bare Copper cable with FRPVC/LSZH Jacket, with an enhanced performance by factory moulded RJ45 connectors with strain relief boots as per ANSI/TIA/EIA 568-C.2 suitable for Cat 6/6A application complying to latest ammendments Category 6/6A Standards, According. to TIA568C.2, ISO/IEC 11801, EN 50173, IEC 60603-7-51, EN 60603-7, IEEE 802.3an minimum requirement for 1G BASE-T to 10G BASE-T performance. Patch cords shall be straight thru cable compatible with both T568-A and T568-B wiring schemes, should support IEEE 802.3af / IEEE 802.3at for POE applications, Minimum 750 to 1000 mating cycles in plug contacts for long durability, Should support Ethernet 10GBASE-T, 1.2 Gb/s ATM, Token ring 4/16, Digital video and broadband/baseband analog video, Voice over internet protocol (VOIP). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.7.1	<b>Cat 6, U/UTP (Unscreened/Un-shielded Twisted Pair) Patch Cord</b>		
20.7.1.1	0.50 Mtr	Each	148.00
20.7.1.2	1 Mtr	Each	223.00
20.7.1.3	2 Mtr	Each	290.00
20.7.1.4	3 Mtr	Each	358.00
20.7.2	<b>Cat 6A, U/FTP (Unscreened/Foiled Twisted Pair) Patch Cord</b>		
20.7.2.1	0.50 Mtr	Each	283.00
20.7.2.2	1 Mtr	Each	425.00
20.7.2.3	2 Mtr	Each	560.00
20.7.2.4	3 Mtr	Each	695.00
20.8	Supply, Drawing and Testing, of stranded Multi mode (50/125 µm) glass optic fiber cable, as per latest ammendments of TIA/EIA 568/ISO/IEC 11801:2011/ IEC 60794-1-2 E1, E3,E11, F1/ EN 50173-1/ EN 187 000/ IEC 60974-2, 2-20, 2-21/ ITU G.652D, construction of LSZH outer sheath cable, cable should be used for LAN and WAN back bones, . With its LSZH sheathing these cables should be ideal for indoor/outdoor installations in existing MS/PVC /HDPE Conduits/ slotted channels with ferruling at both ends for identification complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.8.1	6 fiber	mtr	142.00
20.8.2	12 Fiber	mtr	182.00
20.8.3	24 Fiber	mtr	236.00

Code No.	Description	Unit	Complete Rate
20.9	Supply, Installation, OTDR Testing & Fusion Splicing of Fiber Multimode Pigtail (50/125 $\mu$ m) made of glass fiber optic, should be fitted at one end with any one type of single ST/E-2000/SC/LC/MT-RJ/PC type connector in acc., as per latest ammendments of TIA/EIA 569 Standard Specification as per requirments complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1212.00
20.10	Supply, Installation, & Testing of Indoor duplex <b>Multimode patch cord</b> (50/125 $\mu$ m made of glass fiber optic with LSZH jacket, F8 2.0x4.1 mm, Multimode G652.D Mounted on both sides with ST/E-2000/SC/LC/MT-RJ/PC type Duplex connectors in acc. with IEC 61754-20. Zirconia (ceramic) ferrule with a PC polished endface geometry, connectors should be tuned in accordance with IEC 61755-3-1 and qualified in acc. with IEC 61753-1 for category U (uncontrolled environment, duplex clip and white plastic dust cover, should comply to delta IL < 0.2 dB after 500 mating cycles, there should be an optional Visual coding, mechanical coding and lock protection on the patch cords which can be added on later stage. patch cords's performance should be acc. to IEC 61753-1 (Table A.12) as per latest ammendments of TIA/EIA 569B.3, as per requirements.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.10.1	1 Mtr	Each	1688.00
20.10.2	2 Mtr	Each	1958.00
20.10.3	3 Mtr	Each	2228.00
20.10.4	5 Mtr	Each	2498.00
20.11	Supply, Installation, & Testing of 19" 1U Rack Mounted/ surface mounted aluminum/ CRCA 1.2mm powder coated, multimode glass Fiber Optic Cable Patch panel/LIU loaded with flangless/screwable adapters for ST/E-2000/SC/LC/MT-RJ/PC type, It should have easy removable Top plate with push buttons, there should be a splice tray installed in the Patch panel/LIU which can handle the fiber cores, splice tray should be PC+ABS material, it should include accessories like mounting hardware, gormetts, heat shrink tubes/sleeves, screws, nuts to install the panel for rack/wallmount applications as per requirement complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.11.1	Multi Mode LIU 6 Ports	Each	6402.00
20.11.2	Multi Mode LIU 12 Ports	Each	8691.00
20.11.3	Multi Mode LIU 24 Ports	Each	11453.00
20.12	Supply, Drawing and Testing, of stranded Single mode (9/125 $\mu$ m) glass optic fiber cable, as per latest ammendments of TIA/EIA 568/ISO/IEC, construction of LSZH outer sheath cable, cable should be used for LAN and WAN back bones, . With its LSZH sheathing these cables should be ideal for indoor/outdoor installations in existing MS/PVC /HDPE Conduits/ slotted channels with ferruling at both ends for identification complete in all respect.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.12.1	6 fiber	Mtr	94.00
20.12.2	12 Fiber	Mtr	121.00
20.12.3	24 Fiber	Mtr	162.00
20.13	Supply, Installation, OTDR Testing & <b>Fusion Splicing of Fiber Singlemode Pigtail</b> (9/125 $\mu$ m (OS1/OS2) made of glass fiber optic, with semi-tight buffer PA/PBT, $\varnothing$ 0.9 mm, yellow, singlemode G652.D (9/125 $\mu$ m (OS1, OS2), should have length of min 1.5m, should be fitted at one end with any one type of single ST/E-2000/SC/LC/MT-RJ/PC type connector in acc. with IEC 61754-20, Should be delta IL < 0.2 dB after 500 mating cycles, It should be Zirconia (ceramic) ferrule with a PC polished endface geometry connector qualified in acc. with IEC 61753-1 for category U (uncontrolled environment). and qualified in acc. with IEC 61753-1, Performance acc. to IEC 61753-1 (Table A.12) as per latest ammendments of TIA/EIA 569B.3, Standard Specification as per requirments.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1212.00

Code No.	Description	Unit	Complete Rate
20.14	Supply, Installation, & Testing of Indoor duplex <b>Singlemode patch cord</b> (9/125 $\mu$ m (OS1/OS2) made of glass fiber optic with LSZH jacket, F8 2.0x4.1 mm, yellow, singlemode G652.D (9/125 $\mu$ m (OS1, OS2) Mounted on both sides with ST/E-2000/SC/LC/MT-RJ/PC type Duplex connectors in acc. with IEC 61754-20. Zirconia (ceramic) ferrule with a PC polished endface geometry, connectors should be tuned in accordance with IEC 61755-3-1 and qualified in acc. with IEC 61753-1 for category U (uncontrolled environment, duplex clip and white plastic dust cover, should comply to delta IL < 0.2 dB after 500 mating cycles, there should be an optional Visual coding, mechanical coding and lock protection on the patch cords which can be added on later stage. patch cords's performance should be acc. to IEC 61753-1 (Table A.12) as per latest ammendments of TIA/EIA 569B.3, as per requirements.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.14.1	Single Mode Patch Cord 1 Mtr.	Each	1417.00
20.14.2	Single Mode Patch Cord 2 Mtr.	Each	1688.00
20.14.3	Single Mode Patch Cord 3 Mtr.	Each	1823.00
20.14.4	Single Mode Patch Cord 5 Mtr.	Each	2039.00
20.15	Supply, Installation, & Testing of 19" 1U Rack Mounted/ surface mounted aluminum/ CRCA 1.2mm powder coated, Singlemode glass Fiber Optic Cable Patch panel/LIU loaded with flangless/screwable duplex adapters for ST/E-2000/SC/LC/MT-RJ/PC type, It should have easy removable Top plate with push buttons, there should be a splice tray installed in the Patch panel/LIU which can handle the fiber cores, splice tray should be PC+ABS material, it should include accessories like mounting hardware, gormetts, heat shrink tubes/sleeves, screws, nuts to install the panel for rack/wallmount applications as per requirement complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.15.1	6 Ports	Each	6739.00
20.15.2	12 Ports	Each	8759.00
20.15.3	24 Ports	Each	10778.00
20.16	Supply & Installation of IP-20 & IK-08 , UL Listed <b>Wall mounted Double Section Communication enclosure (Rack)</b> made from powder coated (60 to 80 Micron) CRCA sheet, front sturdy sheet steel frame folded from one piece and welded with minimum 5mm toughened glass door,Vertical Mounting Rail 1.6 MM with 'U'Marking , with All round protective channel on the door aperture, lock integrated on front door, top and bottom cover with cable entry provision with gland plates, integrated side walls, 2 pair of 19" angles with wall mounting provision on wall. Accessories like: 1 No of 19" 1U Horizontal Cable manager, 1 No of 90 cfm 230V AC Fan with 1 mts long cable, mounting hardware , 1 No of 19" 1U, mountable socket strips with 5 nos of 5A universal sockets with 2 mts long power chord for supplying power to switches, fans etc along with earth continuity kit, indicator, moulded power supply cable. fixing on wall with Suitable Anchor fastner etc as required.All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.16.1	6 U Rack with Width 600 mm & Depth 400 mm + 100 mm	Each	9173.00
20.16.2	9 U Rack with Width 600 mm & Depth 400 mm + 100 mm	Each	12142.00
20.16.3	12 U Rack with Width 600 mm & Depth 400 mm + 100 mm	Each	15244.00
20.16.4	15 U Rack with Width 600 mm & Depth 400 mm + 100 mm	Each	18213.00

Code No.	Description	Unit	Complete Rate
20.17	Supply & Installation of IP-20 & IK-08 , UL Listed Communication enclosure (Rack) made from powder coated (60 to 80 Micron) CRCA sheet, Vertical Mounting Rail 1.6 MM with 'U' Marking, front sturdy sheet steel frame folded from one piece and welded with 5mm toughened glass door, with All round protective channel on the door aperture, lock integrated on front door, top and bottom cover with cable entry provision with gland plates, integrated side walls, Set of 75 mm height 4 castors, 2 of which have brakes, Accessories like: 5 Nos of 19" 1U Horizontal Cable manager, 2 Nos of vertical cable managers, 1 no. Keyboard Tray, 4 Nos of 90 cfm 230V AC Fan with 1 mts long cable, mounting hardware , 2 No of 19" 1U, mountable socket strips with 6 nos of 5A universal sockets with 2 mts long power chord for supplying power to switches, fans etc along with earth continuity kit, indicator, moulded power supply cable complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
20.17.1	17 U Rack with Width 600 mm & Depth 800 mm	Each	28616.00
20.17.2	22 U Rack with Width 600 mm & Depth 800 mm	Each	33069.00
20.17.3	27 U Rack with Width 600 mm & Depth 800 mm	Each	41841.00
20.17.4	36 U Rack with Width 600 mm & Depth 800 mm	Each	46227.00
20.17.5	42 U Rack with Width 600 mm & Depth 800 mm	Each	58716.00
20.17.6	42 U Rack with Width 800 mm & Depth 1000 mm with 3 no. Heavy Duty Sliding Drawer	Each	93136.00
20.18	Supply , Installation, Testing and Commissioning of Unmanaged Switch Plug-and-play - easy setup with no configuration or no software needed, following Port fast ethernet - 8 port 10/100 MBPS auto-negotiation RJ45 ports, IEEE 802.3x flow control , supports auto-MDI/MDIX, eliminating the need for crossover cables including making connection etc as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR		
20.18.1	8 Port	Each	2969.00
20.18.2	24 Port	Each	6841.00
20.19	Supply , Installation, Testing and Commissioning of Managed Layer-2 Intelligent 10/100 Ethernet Switch providing 24 x 10/100/1000 MBPS Giga Ethernet ports / with min 2 SFP Giga Ports (provision for Fiber Giga connectivity) with related LAN Base Software including making connections etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR	Each	36783.00
20.20	Supply , Installation, Testing and Commissioning of Managed Layer-2 Intelligent Giga Ethernet Switch providing 24 x 10/100/1000 MBPS Giga Ethernet ports and with min 4 SFP Giga Ports (provision for Fiber Giga connectivity) all switches & related Fiber modules should be of same make & category for seamless integration with each other of Enterprise class Catalyst Series including making connections etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR	Each	101259.00
20.21	Supply , Installation, Testing and Commissioning of Managed Layer-2 Intelligent PoE Giga Ethernet Switch providing 24 x 10/100/1000 MBPS PoE Giga Ethernet ports and with min 4 SFP Giga Ports (provision for Fiber Giga connectivity) with provision of minimum Stacking of 06 Switches with minimum 370 Watt PoE Power Budget with related LAN Base Software including making connections etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR	Each	149428.00
20.22	Supply , Installation, Testing and Commissioning of Hot pluggable Small Form Factor Pluggable (SFP Module), 1000BASE-SX, 1.25/2.125G Fiber Channel, LC Type Duplex Connector, 850nm laser transmitter, Should support distance upto 500m on 50/125um of data rate upto 2.125 Gb/s on bi-directional data links. Should also support industrial temperature, should have metal enclosure for lower EMI. The transceiver should be ROHS Compliant. (For Each MM Fiber) all switches & related Fiber modules should be of same make & category for seamless integration with each other of Enterprise class, complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	13850.00

Code No.	Description	Unit	Complete Rate
20.23	Supply , Installation, Testing and Comissioning of Hot pluggable Small Form Factor Pluggable (SFP Module), 1000BASE-LX, 1G Fiber Channel, LC Type Duplex Connector, 1310 nm laser transmitter, Should support distance upto 10 km on 9/125 um of data rate upto 1.25 Gb/s on bi-directional data links. Should also support industrial temperature, should have metal enclosure for lower EMI. The transceiver should be ROHS Compliant. (For Each SM Fiber) all switches & related Fiber modules should be of same make & category for seamless integration with each other of Enterprise class. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	25499.00
20.24	Supply, installation, Testing and Commissioning of 1000 base-LX/LH single mode/Multi mode fibre to 1000 base-T copper giga bit , Media Convertor complete as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	9447.00
20.25	Fiber Fusion Splicing with OTDR Testing of Fiber Single/ Multi mode (per splice) of glass Fiber Optic Cable including cleaning the cable and making splice as per standard practice complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	802.00
20.26	System Certification & Documentation by OEM for 20 Years as required	Per Node	154.00



**Chapter E - 21****Electrical Driven Pumpsets**

<b>Code No.</b>	<b>Description</b>	<b>Unit</b>	<b>Complete Rate</b>
21.1	Labour charges for installation of submersible motor pump set including lowering/ delowering of pipes, cables, accessories etc. in tube-well/ open well complete including T&P, transportation of tripod, chain pulley block & any other material required for this purpose complete in all respect.		
21.1.1	Lowering only	Each	4012.0
21.1.2	Delowering only	Each	3343.0
21.1.3	Delowering and Lowering	Each	6686.0
21.2	Supply & fixing of PVC threaded casing pipes for Tube well (IS 12818:1992) of 3mtr. Each for depth up to 1200 ft. Plain and strainer Casing CS for Depth upto 400ft. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.2.1	<b>Up to 400 ft Depth</b>		
21.2.1.1	150 mm dia	Mtr.	669.0
21.2.1.2	175mm dia	Mtr.	861.0
21.2.1.3	200 mm dia	Mtr.	1163.0
21.2.1.4	250 mm dia	Mtr.	1730.0
21.2.2	<b>more than 400 ft to 1200 ft. Depth</b>		
21.2.2.1	40mm dia	Mtr.	140.0
21.2.2.2	50 mm dia	Mtr.	197.0
21.2.2.3	80mm dia	Mtr.	273.0
21.2.2.4	100 mm dia	Mtr.	354.0
21.2.2.5	125 mm dia	Mtr.	552.0
21.2.2.6	150 mm dia	Mtr.	755.0
21.2.2.7	175 mm dia	Mtr.	973.0
21.2.2.8	200 mm dia	Mtr.	1314.0
21.2.2.9	250 mm dia	Mtr.	1961.0
21.3	Providing & Laying of Polypropylene rope Confirming to IS:5175 for submersible pump of following sizes. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.3.1	12mm (suitable up to 50 mm OD pipe)	Mtr.	43.0
21.3.2	16mm (suitable above 50mm & up to 75mm OD pipe)	Mtr.	54.0
21.3.3	20mm (suitable for 90 mm OD pipe)	Mtr.	61.0

Code No.	Description	Unit	Complete Rate
21.4	Providing & Fixing of HDPE pipe Confirming to IS:4984:2021 for water supply suitable for submersible & jet pump with required fittings ie socket, elbows, tee etc. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>21.4.1</b>	<b>for vertical installation</b>		
21.4.1.1	40 mm OD 6 kg / cm <sup>2</sup>	Mtr.	94.0
21.4.1.2	50 mm OD 6 kg / cm <sup>2</sup>	Mtr.	115.0
21.4.1.3	63 mm OD 6 kg / cm <sup>2</sup>	Mtr.	148.0
21.4.1.4	75 mm OD 6 kg / cm <sup>2</sup>	Mtr.	196.0
21.4.1.5	90 mm OD 10 kg / cm <sup>2</sup>	Mtr.	337.0
<b>21.4.2</b>	<b>for Horizontal installation</b>		
21.4.2.1	40 mm OD 4kg/ cm <sup>2</sup>	Mtr.	81.0
21.4.2.2	50 mm OD 4 kg/ cm <sup>2</sup>	Mtr.	101.0
21.4.2.3	63 mm OD 4 kg/ cm <sup>2</sup>	Mtr.	142.0
21.4.2.4	75 mm OD 4 kg/ cm <sup>2</sup>	Mtr.	182.0
21.4.2.5	90 mm OD 6 kg/ cm <sup>2</sup>	Mtr.	283.0
21.5	SITC of Single Stage, water cooled, High Speed (2880 RPM), Horizontal, Centrifugal, Openwell Submersible pumps set pre filled with coolant water and fitted with mechanical seal - T/C Vs T/C, Thrust bearing shall be of carbon + S.S.The stator body of single phase pump shall be of SS and rest of all shall be of cast iron. All casting parts should be cathod electro deposition (CED) coated and other construction material should be confirming to IS : 14220: 2018 . The overall performance of pump shall confirm to BEE energy efficiency level of 3 star. Valid BEE certificate from OEM must be submitted for the same. Motor should be IE2 class as per IEC 60034-2-1: 2007, IEC 60034-30: 2008, & IS12615:2011, including making connection etc as required complete in all respect. OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.5.1	0.5 HP, 1-Ø, (7 -15) Mtr, (130 - 72) LPM	Each	12527.0
21.5.2	1.0 HP, 1-Ø, (7 -12) Mtr, (405- 240) LPM	Each	16052.0
21.5.3	1.5 HP, 1-Ø, (18 -26) Mtr, (126 - 78) LPM	Each	21249.0
21.5.4	2.0 HP, 1-Ø, (12 -25) Mtr, (350 - 115) LPM	Each	22937.0
21.5.5	3.0 HP, 3-Ø, (17 -27) Mtr, (680 - 300) LPM	Each	25922.0
21.5.6	5.0 HP, 3-Ø, (14 -28) Mtr, (995-500) LPM	Each	28389.0
21.5.7	7.5 HP, 3-Ø, (12 -32) Mtr, (1240-475) LPM	Each	36999.0

Code No.	Description	Unit	Complete Rate
21.5.8	10.0 HP, 3-Ø, (22 -36) Mtr, (1860 - 1020) LPM	Each	47946.0
21.5.9	12.5 HP, 3-Ø, (19.5 -33) Mtr, (2150-1300) LPM	Each	66415.0
21.5.10	15.0 HP, 3-Ø, (16 -32) Mtr, (2300-1250) LPM	Each	75794.0
21.6	SITC of Radial / mixed flow ISI marked water and anti-corrosive liquid filled submersible motor pump sets suitable for 100/150mm dia borewell. The size of adopter fixed on top of the motor should exceed the top of coupler , for safegaurd the coupler. The construction material of motor and pump should match IS: 8034 : 2018 and IS: 9283 guideline. The radial flow pumpset should operate at 5 star energy efficiency level of BEE and mixed flow pump set should operate at 3 star energy level of BEE, accompanied by valid BEE certificate. Motor should be IE2 class as per IEC 60034-2-1: 2007, IEC 60034-30: 2008, & IS12615:2011 with required accessories including making connection suitable for Bore well. The job includes labour part of lowering of riser pipe G.I./ H.D.P.E. with rope, cables & pump, installation of complete fitting and accessories, jointing of electrical cables up to Starter. All labour for testing of submersible pumps set and supply of water to water mains, complete in all respect. OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>21.6.1</b>	<b>100 mm diameter Submersible pump shall have following HP Rating, phase, Head range, Discharge range respectively.</b>		
21.6.1.1	1.0 HP, 1-Ø, (10 - 83)Mtr, (40- 10) LPM	Each	21866.0
21.6.1.2	1.5HP, 1-Ø, (11 - 94)Mtr, (40 - 10) LPM	Each	23500.0
21.6.1.3	2.0 HP, 1-Ø, (7- 95)Mtr, (55-22) LPM	Each	25202.0
21.6.1.4	3.0 HP, 1-Ø, (40 -170)Mtr, (60- 20) LPM Copper Wound	Each	42469.0
21.6.1.5	5.0 HP, 1-Ø, (56 - 236)Mtr, (90 - 25) LPM Copper wound	Each	49445.0
<b>21.6.2</b>	<b>150 mm diameter Submersible pump shall have following HP Rating, phase, Head range, Discharge range respectively.</b>		
21.6.2.1	3.0 HP, 3-Ø, (54 -95)Mtr, (250-50) LPM	Each	45400.0
21.6.2.2	5.0 HP, 3-Ø, (68 - 102)Mtr, (225-85) LPM	Each	53024.0
21.6.2.3	7.5 HP, 3-Ø, (76 - 96)Mtr, (285-180) LPM	Each	56583.0
21.6.2.4	10.0 HP, 3-Ø, (91 - 115)Mtr, (285-180) LPM	Each	71959.0
21.6.2.5	12.5 HP, 3-Ø, (78 - 126)Mtr, (395-245) LPM	Each	78975.0
21.6.2.6	15.0 HP, 3-Ø, (80 - 123)Mtr, (465-305) LPM	Each	86343.0

Code No.	Description	Unit	Complete Rate
21.7	SITC of Monoblock motor pump set ISI marked (IS:9079-2002) with TEFC motor, motor should be IE2 class as per IEC 60034-2-1: 2007, IEC 60034-30: 2008, & IS12615:2011. with Stainless steel Impellor, Stainless steel shaft, Mechanical seal, Single/Three phase ( 240 - 440 V ) permanent split capacitor type (PSC), fitted with thermal overload protection, Including cost of hardware etc on existing platform complete. Pump shall have following HP Rating, phase, Head, minimum Discharge respectively complete in all respect. OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.7.1	0.5 HP, 1-Ø, (3 - 18)Mtr, (100-26) LPM	Each	10730.0
21.7.2	1.0 HP, 1-Ø, (10-120)Mtr, (30-12) LPM	Each	13877.0
21.7.3	1.5 HP, 1-Ø, (6-24)Mtr, (400-80) LPM	Each	17291.0
21.7.4	2.0 HP, 3-Ø, (6-27)Mtr, (425-100) LPM	Each	27943.0
21.7.5	3.0 HP, 3-Ø, (14 - 26)Mtr, (760-600) LPM	Each	35287.0
21.7.6	5.0 HP, 3-Ø, (24-44)Mtr, (680-370) LPM	Each	41929.0
21.7.7	7.5 HP, 3-Ø, (20-32)Mtr, (1060-900) LPM	Each	50515.0
21.7.8	10.0 HP, 3-Ø, 32- 48)Mtr, (830-450) LPM	Each	63963.0
21.8	SITC of Dewatering Submersible Motor Pump set, motor should be IE2 class as per IEC 60034-2-1: 2007, IEC 60034-30: 2008, & IS12615:2011. with SS Impellor, body, shaft, mechanical seal etc. as required. Pump shall have following HP Rating, phase, Head, minimum Discharge respectively complete in all respect. OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.8.1	1.0 HP, 3-Ø, (5 - 12)Mtr, (333 - 95) LPM	each	27896.0
21.8.2	2.0 HP, 3-Ø, (5 - 18)Mtr, (480 - 66) LPM	each	43033.0
21.8.3	3.0 HP, 3-Ø, (5 - 20)Mtr, (810 - 126) LPM	each	46149.0
21.8.4	5.0 HP, 3-Ø, (5 - 24)Mtr, (1170 - 174) LPM	each	85323.0

Code No.	Description	Unit	Complete Rate
21.9	SITC of Drain Sewage pump Non-clog fully floodable submersible pump suitable to handle raw sewage suitable for up to 40 mm solid with Cast iron CED coated Impellor, CI body & housing, SS shaft, Mechanical seal etc. as required. Pump shall have following HP Rating, phase, Head, minimum Discharge respectively complete in all respect. Appropriate type test certificate / OEM test report shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.9.1	1.0 HP, 3-Ø, (6 - 12)Mtr, (333 - 45) LPM	Each	24938.0
21.9.2	2.0 HP, 3-Ø, (8 - 16)Mtr, (375 - 120) LPM	Each	47935.0
21.9.3	3.0 HP, 3-Ø, (8 - 20)Mtr, (590 - 220) LPM	Each	51322.0
21.1	SITC of Pressure boosting pump with 24 Ltr. MS Tank, pressure switch, pressure gauge, and all standard fittings fully automatic ON / OFF system, 2900 RPM with stainless steel casing, & impellor suitable for following capacity complete in all respect. Appropriate type test certificate / OEM shall have submit NABL / CPRI / ERDA accredited lab type test certificate before execution. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.10.1	0.5 HP ( 15 - 10 ) Mtr, (24 - 40 ) LPM	Each	25654.0
21.10.2	0.75 HP ( 30 - 10 ) Mtr, (09 - 40 ) LPM	Each	27717.0
21.10.3	1.0 HP ( 25 - 15 ) Mtr, (30 - 48 ) LPM	Each	35723.0
21.10.4	1.5 HP ( 37 - 20 ) Mtr, (24 - 48 ) LPM	Each	45565.0
21.11	Providing & Fixing of CI foot valve complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.11.1	Rocket type (for bore well) 50/ 60 mm	Each	1321.0
21.11.2	Handi type (for open well) 80/ 100 mm	Each	2088.0
21.12	Supply & fixing of GI pipes confirming to IS : 1239 P - 1 ( 2004 ) with flanges duly screwed & welded including rubber washer, nuts & bolts of 8mm dia complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
21.12.1	B class 32mm dia	P mtr	513.0
21.12.2	B class 40mm dia	P mtr	608.0

Code No.	Description	Unit	Complete Rate
21.12.3	B class 50mm dia	P mtr	848.0
21.12.4	B class 65mm dia	P mtr	1080.0
21.12.5	B class 80mm dia	P mtr	1340.0
21.12.6	B class 100mm dia	P mtr	1848.0
21.13	SITC of Contactor OEM Fabricated DOL/Star-Delta Starter panel with switchgear selection as per Type-2 Cordinatiom Chart and made out from 1.6 mm thick powder coated CRCA sheet, enclosure comprising of over load protection relay, short circuit & single phasing protection, Illuminated ON / OFF push buttons, ammeter, voltmeter, indicating lamps etc. suitable for following rating motors complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>21.13.1</b>	<b>For single phase Submersible / Monoblock pump</b>		
21.13.1.1	0.5 HP to 1.5 HP (DOL starter)	Each	4923.0
21.13.1.2	2.0 HP to 3.0 HP (DOL starter)	Each	5406.0
<b>21.13.2</b>	<b>For Three phase Submersible / Mono block pump</b>		
21.13.2.1	Upto 3.0 HP ( DOL starter )	Each	7246.0
21.13.2.2	3.0 HP to 5.0 HP ( DOL starter )	Each	10173.0
21.13.2.3	7.5 HP to 10.0 HP ( DOL starter )	Each	13318.0
21.13.2.4	3.0 HP to 5.0 HP ( Star / Delta starter )	Each	14370.0
21.13.2.5	7.5 HP to 10.0 HP ( Star / Delta starter )	Each	18932.0
21.13.2.6	12.5 HP to 15.0 HP ( Star / Delta starter )	Each	21711.00

## Chapter E 22

## Air Cooling &amp; Airconditioning

Code No.	Description	Unit	Complete Rate
22.1	<p>Supply , Installation, Testing and Comissioning of factory assembeled double skin central evaporative cooling plant having specifications as per <b>A, B, C, D, E</b></p> <p>A. Air washer comprising of 2nos Pre-Filters. First filter shall be 50mm thick Aluminium wiremesh filter &amp; second filter shall be 50 mm thick MERV-8 synthetic media filter with efficiency 90 % down to 10 microns. Both filters to be placed over the common frame.</p> <p>B. Humidification section comprising of Wet pads 200 mm thick impregnated cellulose paper media ( Celdec pads ) with 2 bend PVC eliminator. The End plates of Pad &amp; Eliminator shall be in SS 304 construction. Also, the inner blank offs of Wet section shall be in SS304 construction.</p> <p>C. Fan Section comprising of belt driven, DIDW Backward curved AMCA certified centrifugal fan with maximum air outlet velocity of 10m/s suitable for required cfm at 50 mm static pressure (Total static of the unit shall be verified by the OEM before the design &amp; supply of the units). Fan &amp; Motor should be mounted over Aluminium channel of suitable thickness and should be isolated from the unit's bottom panel by means of Spring isolators.</p> <p>D. TEFC High efficiecny IE-3 class motors as required with pulley, belt , Guard</p> <p>E. The unit shall be fabricated with frame work hollow extruded aluminium profile with 0.80 mm preplasticised GSS on outside and 0.80mm 275gsm plain GSS on inside complete with 25 mm thick CFC free PUF insulation of minimum 40 kg/cum density sandwiched in between inner and outer skins. Unit should have MS powder coated legs to give height to unit's base channel from the floor surface. SS-304 ( 18 g ) Sump, UPVC Internal piping, make up, drain &amp; quick fill and drain connection, Butterfly/Gate valves for pumps, make up, drain &amp; quick fill and drain connections of sump, 2 no. Vertical Pumps of suitable capacity to be placed inside the unit's housing (external pumps are not acceptable) ,Y strainers and necessary fittings, Concrete Blocks / M S stand, anti vibration pads etc.as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/work , refer Annexure "A" attached with this BSR .</p>		
22.1.1	Upto 7500 cfm	per cfm	28.0
22.1.2	more than 7500 cfm to 15000 cfm	per cfm	26.0

Code No.	Description	Unit	Complete Rate
22.1.3	more than 15000 cfm to 25000 cfm	per cfm	23.0
22.1.4	more than 25000 cfm to 35000 cfm	per cfm	20.0
22.2	SITC of Wall mounting cubical type Starter panel made out of 1.6 mm thick sheet steel powder coated enclosure designed as per Switchgear OEM type -2 coordination chart and suitable for operation of following cfm range Air Washer's Blower motor, pump comprising of over load protection relay, short circuit & single phasing protection, ON / OFF push buttons, ammeter, voltmeter, indicating lamps, MCB etc. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.2.1	Upto 7500 cfm	Set	14843.0
22.2.2	more than 7500 cfm to 15000 cfm	Set	23281.0
22.2.3	more than 15000 cfm to 25000 cfm	Set	32394.0
22.2.4	more than 25000 cfm to 35000 cfm	Set	39282.0
22.3	Supply , Installation, Testing and Comissioning of wall mounted remote ON/OFF Push Button station for AHU/Air washers made out from powder quoted CRCA sheet of 16 SWG , illuminated ON/OFF push button including making connections etc as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Set	6412.0
22.4	P & F of Fire retardent flexible canvass connection made of fibreglass weave having silver grey silicon rubber coating, of height 200 mm with sufficient fold to avoid transmission of vibration with GI frame ,Gasket Nut Bolts for air cooling Plants/AHU/FCU etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq Mtr	2023.0



Code No.	Description	Unit	Complete Rate
22.5	SITC of VFD OEM fabricated VFD cum Bypass starter panel Confirming to IEC60721-3-3, IEC60068-2-60 & IEC60068-2 for variable torque applications, 3C3 avg., 200% torque producing capability at min freq of 0.5 Hz, integrated with 3 to 5% of input reactor or built in DC reactor, Max output frequency 400Hz, built in braking chopper till 30KW, built in RS485 Modbus RTU, Min 7DI, 2DO, 2AI, 1AO, onboard control supply of 24V -150 mA for external operations, RJ45 port, Monitoring parameters – V, I, Torque, Freq, RPM, Watt Hour, DC bus voltage, Analog input V or mA, I/O Status, PID loop monitoring, Torque speed, speed limit, Cooling fan, Protection functions – Ground fault, Over current, Overload, UV/OV, Under/over torque, I/P & O/P phase loss, DBR O/L, inverter over hit alarm, DC bus charge LED indication, heatsink thermistor open detection, stall prevention, fault history of min 4 last faults. Bypass starter shall be provided as per type 2 coordination etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.5.1	1.5 KW	Each	70760.0
22.5.2	2.2 KW	Each	73311.0
22.5.3	3.7 KW	Each	79317.0
22.5.4	5.5 KW	Each	92954.0
22.5.5	7.5 KW	Each	100959.0
22.5.6	11.0 KW	Each	105997.0
22.5.7	15.0 KW	Each	122604.0
22.5.8	18.5 KW	Each	140750.0
22.6	Supply , Installation, Testing and Comissioning of site fabricated ducting made from GI sheet metal conforming to IS:277 with a zinc coating grade not less than 120 GSM (both side inclusive) & fabricated as per IS:655 and as per approved drawings & designs including the cost of hangers, supports, angle, expansion fasteners , closed cell neoprene gasket T&P etc. as required of following thickness. Test Certificate for Galavanizing with lot no. to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.6.1	0.60 mm	Sqm	970.0
22.6.2	0.80mm	Sqm	1155.0
22.6.3	1.00mm	Sqm.	1386.0
22.6.4	1.25mm	Sqm.	1663.0

Code No.	Description	Unit	Complete Rate
22.7	Supply , Installation, Testing and Comissioning of site fabricated ducting made from aluminium sheet conforming to IS:737, Grade 31000 fabricated as per IS:655 and as per approved drawings & designs including the cost of hangers, supports , angle , expansion fasteners , closed cell neoprene gasket T&P etc. as required of following thickness. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.7.1	0.60 mm	Sq Mtr	1236.0
22.7.2	0.80mm	Sq Mtr	1540.0
22.7.3	1.00mm	Sq Mtr	1872.0
22.7.4	1.20mm	Sq Mtr	2189.0
22.8	Supply , Installation, Testing and Comissioning of factory fabricated SMACNA standard ducting made from GI sheet metal conforming to IS:277 with a zinc coating grade of 120GSM (both side inclusive) & fabricated as per IS:655 and as per approved drawings & designs including the cost of hangers, supports, angle, expansion fasteners , closed cell neoprene gasket T&P etc. as required of following thickness. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.8.1	0.60mm	Sqm	1295.0
22.8.2	0.80mm	Sqm	1552.0
22.8.3	1.00mm	Sqm.	1903.0
22.8.4	1.25mm	Sqm.	2301.0
22.9	Supplying, installing, testing and balancing of extruded Aluminium Powder coated supply/return Grilles with fixed bars at front having 0 / 15 / 30 / 45 degrees deflection as required. with Flange size 20 mm with rounded edges including fixing with steel screws etc. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq.m	6345.0
22.10	Supplying, installing, testing and balancing of double louvered of extruded Aluminium Powder coated supply/return air grills of various sizes, Each grill shall be with fixed aerofoil shaped horizontal front bar at 0 deflection and back adjustable vertical louvers, air distribution grid for straightening the air flow through the collar and register including fixing with steel screws etc. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		

Code No.	Description	Unit	Complete Rate
22.10.1	Supply air grill with key operated volume control damper	Sqm.	10530.0
22.10.2	Return air grill without volume control damper	Sqm.	8438.0
22.11	Supplying, installing, testing and balancing of extruded Aluminium powder coated Air Diffuser and complete with Flush, 20mm flanges with PVC/neoprene gasket, anti – smudge frame and removable inner core to facilitate the adjustable of air control damper, square/round/ rectangular as required.including fixing with steel screws etc. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.11.1	Supply Air Diffuser with Volume Control damper	Sqm.	12219.0
22.11.2	Return Air Diffuser without Volume Control damper	Sqm.	9855.0
22.12	Supplying, installing and balancing of extruded Aluminium powder coated fresh air inlet louvers with bird screen & volume control damper fixing with steel screws etc. complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
		Sqm.	8371.0
22.13	Supply , installation, testing & balancing of 20 Gauge G I Damper with brass bushes and 6" pitch multiblade box type galvanised sheet steel construction volume control damper for Ducting and air washers to be provided with suitable links and quadrants for control of volume of air as per specifications complete as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
		Sq Mtr	5128.0
22.14	Supply and fixing of acoustic lining of ducts with chemically cross link Oxide acetate foam open cell structure Acoustic Insulation with density 30 Kg / Sqm, UV protected and Class O Fire propperty Water Vapour absorption 0.002 gm / Sqcm, including cost of adhesive etc. complete in all respect. All as per pre approved by Engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.14.1	10 mm thick	Sqm	755.0
22.14.2	15 mm thick	Sqm.	978.0
22.14.3	25 mm thick	Sqm.	1423.0

Code No.	Description	Unit	Complete Rate
22.15	Supply and fixing duct insulation with 50 mm thick Expanded Polystyrene Thermocol (ESP) sheet of density 24 kg/cu.m after applying two coats of cold setting adhesive (CPRX Compound) and binding sheet with chicken wire mesh and applying cement mortar plaster (1:4) including primer & painting (suitable for outdoor application) matching with building colour or as per direction of Engineer incharge as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sqm.	985.0
22.16	Supply and fixing aluminium foil faced 50 mm thick Rock wool insulation of density 36 kg/cu.m after applying two coats of cold setting adhesive (CPRX Compound) sealing all joints with self adhesive tape & finished with 26 G Aluminium cladding. complete in all respect. (For Outdoor applications-air conditioning ducts) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sqm.	1126.0
22.17	Supply & fixing of external thermal closed-cell Nitrile rubber Insulation material FM/UL approved with high water vapor diffusion resistance and low thermal conductivity should be certified 'Class O' in Fire Propagation as per BS 476 Part 6 in form of sheet on duct including cost of adhesive (CPRX Compound) complete as required. All as per pre approved by Engineer in charge.		
22.17.1	9mm thick for indoor Application	Sqm	718.0
22.17.2	13mm thick for indoor Application	Sqm	926.0
22.17.3	13mm thick for Outdoor Application with 26 SWG Aluminium Cladding	Sqm	1148.0
22.17.4	19mm thick for Outdoor Application with 26 SWG Aluminium Cladding	Sqm	1460.0
22.18	Supplying, installing of external thermal closed cell cross linked polyethelene (XLPE) foam insulation made out from non-fibrous, fire retardant (FR), closed cell, tri-dimensional chemically crosslinked polyethylene foam. should be certified 'Class O' in Fire Propagation and 'Class 1' in Surface Spread of Flame as per BS 476 Part 6 & Part 7 respectively in the form of sheet on ducts including cost of adhesive, tape complete as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		

Code No.	Description	Unit	Complete Rate
22.18.1	9mm thick	Sqm	680.0
22.18.2	13mm thick	Sqm	814.0
22.18.3	25 mm thick		1096.0
22.19	Supply and fixing duct insulation with 50 mm thick Expanded Polystyrene Thermocol (ESP) sheet of density 24 kg/cu.m after applying two coats of cold setting adhesive (CPRX Compound) and binding sheet with chicken wire mesh and applying 26 G aluminium cladding complete as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq Mtr	1086.0
22.20	Supply , Installation, Testing and Comissioning of expanded polysterene over deck insulation having thickness of 50 mm and density of 36 Kg / m3 including binding of fibre cloth and applying of two coats of UV paint suitable for exposed atmosphere complete as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq Mtr	1197.0
22.21	Supplying and fixing of thermal insulation on exposed roof (underdeck) with 25 mm thick Cross Linked Closed Cell Polyethylene FR-XPE insulation of density 33 Kg/m <sup>3</sup> with adhesive etc. as required & finally fixed with the help of rawl plug, dash fasteners & adhesive in ceiling of pieces in size of 900x900 mm or 1200x1200 mm. etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq Mtr	1171.0
22.22	Supplying, fixing acoustic lining on wall and ceiling of AHU rooms with 50mm thick, density 32 kg/cu.m resin bonded glass fiber insulation friction fixed in 610mm x 610 mm frame work made of 25X50X50X50X25 mm made out of 0.6mm thick GI sheet U shaped channel and covered with reinforced fiber glass tissue and finished with 0.80 mm perforated aluminium sheet etc. complete as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq Mtr	1092.0

Code No.	Description	Unit	Complete Rate
22.23	Supply , Installation, Testing and Comissioning of Window type Air conditioners as per BEE star rating complete with copper power cable upto 3 Mtr, wireless Remote, suitable for working between 230 V +/- 10% with low & high voltage cutoff and 50 Hz ,1 phase AC supply capable of performing, cooling, dehumidification, air circulation R-32/R-410 Green Refrigerant with Scroll / rotary compressor complete with fixing including T&P & labour etc as required complete in all respect as specified of following capacity. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.23.1	1.5 TR ISEER not less then 3.0	Each	32340.0
22.23.2	1.8 TR	Each	35338.0
22.24	Supply , Installation, Testing and Comissioning of Inverter type Air Cooled Hi Wall split type Air conditioners with latest star rating system as per BEE amended upto date complete with Indoor unit(IDU), Out door unit (ODU), surface / concealed copper Refrigerant piping with insulation (closed cell elastomeric nitrile rubber tubular pipe section) upto 3 Mtr (IDU to ODU), copper power cable upto 3.5 Mtr (IDU to ODU), R-32/R-410 Green Refrigerant, wireless Remote control, suitable for working between 230V +/- 10% with low & high voltage cutoff and 50 hz , single phase AC supply capable of performing cooling, dehumidification, air circulation of following capacity with Scroll / rotary compressor. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.24.1	1.0 TR ISEER not less then 3.8	Each	40096.0
22.24.2	1.0 TR ISEER not less then 4.6	Each	50225.0
22.24.3	1.5 TR ISEER not less then 3.8	Each	48875.0
22.24.4	1.5 TR ISEER not less then 4.6	Each	58329.0
22.24.5	1.8 TR ISEER not less then 3.8	Each	62380.0
22.24.6	1.8 TR ISEER not less then 4.6	Each	66432.0
22.24.7	2.0 TR ISEER not less then 3.8	Each	63731.0
22.24.8	2.0 TR ISEER not less then 4.6	Each	67783.0

Code No.	Description	Unit	Complete Rate
22.25	Supply , Installation, Testing and Comissioning of Air Cooled Floor standing Tower type split Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), surface / concealed copper Refrigerant piping with insulation (closed cell elastomeric nitrile rubber tubular pipe section) upto 3 Mtr (IDU to ODU), copper power cable upto 3.5 Mtr (IDU to ODU), R-32/R-410 Green Refrigerant, wireless Remote control, suitable for working between 415 V +/- 10% ,3 phase 50 Hz AC Supply with low & high voltage cutoff and capable of performing cooling, dehumidification, air circulation of following capacity with Scroll / rotary compressor. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.25.1	3.0/3.3 TR	Each	132985.0
22.25.2	3.6 TR	Each	146490.0
22.25.3	4.0 TR	Each	153243.0
22.25.4	4.6 TR	Each	159996.0
22.26	SITC of air cooled ducted split type air conditioning machine with each having a capacity and details as mentioned below suitable for operation on factory charged R-32/R-410A Green refrigerant comprising of Scroll /rotary type compressor hermetically sealed complete with automatic capacity, safety switches, lubrication system, Suitable capacity squirrel cage induction motor with class 'B' insulation suitable for operation on sigle / three phase supply, 50 Hz, A.C. supply for Blower motor, Necessary drive arrangement for blower motor, Matching Air cooled condenser with necessary fittings for refrigerant piping connections, necessary structural support for mounting condensers, Microprocessor based control panel complete with accessories, machine isolation / disconnect switch, valves and accessories to inter connect compressor and condender including pressure testing, vacuum. Necessary starters suitable for Indoor & outdoor unit complete with O/L , U/V, phase reversal protection, single phase preventors etc complete as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.26.1	3.0 TR	Each	78962.0
22.26.2	4 TR	Each	101908.0
22.26.3	5.5 TR	Each	162002.0
22.26.4	8.5 TR	Each	226789.0
22.26.5	11 TR	Each	289571.0
22.26.6	16.5 TR	Each	445488.0

Code No.	Description	Unit	Complete Rate
22.27	Supply , Installation, Testing and Comissioning of Air Cooled Cassette type Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), R-32/R410A Green Refrigerant, wireless Remote, inbuilt drain pump, suitable for 400/230V, +/- 10% 50 Hz ,1 /3 phase AC supply, apable of performing cooling, dehumidification, Air circulation, filtration & ventilation of following capacity with Scroll /rotary/twin rotary compressor. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>22.27.1</b>	<b>Inverter Type</b>		
22.27.1.1	1.5 TR with ISEER not less then 3.5 (compact 2x2)	Each	92481.0
22.27.1.2	1.8 ISEER not less then 3.5 (compact 2x2)	Each	107337.0
22.27.1.3	1.5 TR ISEER not less then 3.5	Each	91130.0
22.27.1.4	1.8 TR ISEER not less then 3.5	Each	104636.0
22.27.1.5	2.0 TR ISEER not less then 3.5	Each	106662.0
22.27.1.6	3.0 TR	Each	111389.0
22.27.1.7	3.8 / 4.0 TR	Each	124894.0
<b>22.27.2</b>	<b>Non Inverter</b>		
22.27.2.1	1.5 TR with ISEER not less then 3.0 (compact 2x2)	Each	84377.0
22.27.2.2	1.8 ISEER not less then 3.0 (compact 2x2)	Each	92481.0
22.27.2.3	1.5 TR ISEER not less then 3.0	Each	91130.0
22.27.2.4	1.8 TR ISEER not less then 3.0	Each	100584.0
22.27.2.5	2.0 TR ISEER not less then 3.0	Each	103285.0
22.27.2.6	3.0 TR	Each	108688.0
22.27.2.7	3.8 / 4.0 TR	Each	120843.0



Code No.	Description	Unit	Complete Rate
22.28	Supply, Installation, Testing & Commissioning of modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having 100% hermetically sealed inverter type Scroll Compressor(s) with and minimum two compressors along with two Condensing fan, above 14/18 HP modules, microprocessor based Controller, Side / top discharge type condensing unit(s), with R-410 A Refrigerant, vibration isolators, with suitable foundation etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The EER at 100% load with AHRI conditions shall not be less than 3.5 and Including OEM supplied Piping connection Kit etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	per HP	24270.0
22.29	Supply, installation, testing and commissioning of following minimum capacity 4-way flow VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration isolation, Corded remote control etc., suitable for operation on single phase 230 V $\pm$ 10%, 50Hz AC supply, complete, as required. The unit shall have automatic force shut down valve in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.29.1	0.8 TR	Each	51234.0
22.29.2	1 TR	Each	52720.0
22.29.3	1.2 TR	Each	55691.0
22.29.4	1.6 TR	Each	56785.0
22.29.5	2 TR	Each	58230.0
22.29.6	2.4 TR	Each	64943.0
22.29.7	3.2 TR	Each	66172.0
22.29.8	4 TR	Each	69278.0

Code No.	Description	Unit	Complete Rate
22.29.9	4.6 TR	Each	71588.0
22.30	Supply, installation, testing and commissioning of following minimum capacity 4-way flow compact VRV/VRF Cassette ( 2' x 2' ) Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration isolation, Corded remote control etc., suitable for operation on single phase 230 V $\pm$ 10%, 50Hz AC supply, complete, as required. The unit shall have automatic force shut down valve in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.30.1	0.6 TR	Each	57879.0
22.30.2	0.8 TR	Each	61418.0
22.30.3	1 TR	Each	62093.0
22.30.4	1.2 TR	Each	66550.0
22.30.5	1.6 TR	Each	67495.0
22.31	Add Extra for OEM make Wireless remote in place of Wired remote including receiver as required.	Each	5396.0
22.32	Supply, installation, testing and commissioning of following minimum capacity VRV/VRF High wall type Indoor unit equipped with and comfort washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V $\pm$ 10%, 50 Hz, single phase AC supply, complete as required. The unit shall have automatic force shut down valve in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.32.1	0.6 TR	Each	34478.0
22.32.2	0.8 TR	Each	34896.0
22.32.3	1.0 TR	Each	35572.0

Code No.	Description	Unit	Complete Rate
22.32.4	1.2 TR	Each	36787.0
22.32.5	1.65 TR	Each	37867.0
22.32.6	2 TR	Each	38948.0
22.33	Supply, installation, testing and commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V $\pm$ 10%, 50 Hz complete as required. The unit shall have automatic force shut down valve in case of fire on receiveing signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>22.33.1 Low static ductable units (19 to 30 pascal external static pressure)</b>			
22.33.1.1	0.8 TR	Each	46413.0
22.33.1.2	1 TR	Each	46899.0
22.33.1.3	1.2 TR	Each	48182.0
22.33.1.4	1.6 TR	Each	49803.0
22.33.1.5	2 TR	Each	52909.0
22.33.1.6	2.4 TR	Each	58446.0
<b>22.33.2 Mid Static Ductable units ( 35 to 77 pascal external static pressure)</b>			
22.33.2.1	3.2 TR	Each	67887.0
22.33.2.2	4 TR	Each	76517.0
22.33.2.3	4.6 TR	Each	88672.0
<b>22.33.3 High Static Ductable units ( 78 pascal or above external static pressure)</b>			
22.33.3.1	5.5 TR		128778.0
22.33.3.2	6.6 TR	Each	138353.0
22.33.3.3	8.0 TR	Each	148476.0
22.33.3.4	13.0 TR	Each	205842.0
22.33.3.5	16.0 TR	Each	239566.0

Code No.	Description	Unit	Complete Rate
22.34	Supply, installation, testing & commissioning of Group controller for monitoring the status and working condition of all indoor and outdoor units, The controller shall act as an advanced air conditioning management system to given complete control of VRV/VRF air conditioning equipment with Starting/stopping of air-conditioning as a zone or group of individual units. Temperature setting for each Indoor units of zone, Switching between temperature control modes, switching of the fan speed and direction of airflow, enabling/disabling of individual remote controller operation, Alarm code display in case of any problem. It shall be able to control up to 64 (max. 512 if required) number of Indoor units. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	43192.0
22.34.1	Add Extra for extenders/adaptors compatible with central controller to enable the controller to work with 128 IDU's	Each	17517.0
22.34.2	Add Extra for extenders/adaptors compatible with central controller to enable the controller to work with 256 IDU's	Each	32360.0
22.34.3	Add Extra for extenders/adaptors compatible with central controller to enable the controller to work with 512 IDU's	Each	79563.0
22.35	Supply, installation, Testing & commissioning of VRV/VRF compatible OEM make AHU KIT' including expansion valve and controller for connecting AHU with VRF.	Each	59358.0
22.36	Supplying and installation of high-pressure grade required size OEM make copper connection Y or T Joints / refnet for liquid and suction line complete erected on wall/ceiling with supports/raceways, Nitrile rubber insulation, painting etc. with brazing and testing for leakages confirming the normal operation of the VRV / VRF air conditioning system. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	6881.0
22.37	Gas charging of VRF/VRV system with R410A refrigerant gas. Before gas charging system shall be flushed with high purity Nitrogen Gas to remove carbon content, dirt particles to make sure that there is no chance of mixing any impurity with Refrigerant Gas. Thereafter System shall be tested with Nitrogen Gas at 1.5 Times of working pressure of R410 Refrigerant Gas to ensure leakproof system. Whole system shall be Vacuumed up to 500-micron level which ensures the zero-moisture content level in piping to ensure better cooling efficiency and long life of the system. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Kg	1821.0

Code No.	Description	Unit	Complete Rate
22.38	Supplying and drawing flexible / stranded bare copper conductor, PVC / XLPE insulated, overall aluminium mylar tape shielded ATC drain wire and outer PVC sheathed industrial Instrumentation (shielded)cables voltage grade 300/500 V as per BS /EN 50288-7 in existing surface or recessed PVC/ MS conduit/casing capping / Cable tray / Open Duct making connections, testing etc. as required. OEM Must have its own in house NABL lab setup for all testing facilities for cables. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.38.1	<b>Un Armoured</b>		
22.38.1.1	2 core x 1.0 Sq.mm	Mtr.	75.0
22.38.1.2	2 core x 1.5 Sq.mm	Mtr.	94.0
22.38.1.3	2 core x 2.5 Sq.mm	Mtr.	135.0
22.38.1.4	4 core x 2.5 Sq.mm	Mtr.	232.0
22.38.2	<b>Armoured</b>		
22.38.2.1	2 core x 1.0 Sq.mm	Mtr.	135.0
22.38.2.2	2 core x 1.5 Sq.mm	Mtr.	158.0
22.38.2.3	2 core x 2.5 Sq.mm	Mtr.	204.0
22.38.2.4	4 core x 2.5 Sq.mm	Mtr.	329.0
22.39	Supply, installation, testing and comissioning of interconnecting copper refrigerant piping of DHE Grade C12200- ASTM B68, B75, chemical composition of copper %- 99.0 Min and Phosphorus %- 0.015 to 0.040 . For Annealed copper tube :- Tensile strength = 210 Mpa wih elongation % = 40 Min . Ink Mark Brand Printing on Hard Tubes should be present. duly insulated with tubular elastomeric nitrile rubber FM/UL approved with high water vapor diffusion resistance and low thermal conductivity should be certified 'Class O' in Fire Propagation as per BS 476 Part 6 including chase cutting andfilling with mortar, Slotted channel supports mounted on 10 mm threaded rod at suitable spacing the exposed piping shall be wrapped with glass woven cloth and lag coating for vapour barrier and weather protection. Joints shall be covered with nitrile rubber tape of 3 mm thick complete as required of following sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.39.1	41.1 mm O.D., wall thinkness $\geq 1.4$ mm (insulation – 19 mm thick)	Mtr.	4316.0
22.39.2	38 mm O.D., wall thinkness $\geq 1.4$ mm (insulation – 19 mm thick)	Mtr.	4019.0
22.39.3	34.9 mm O.D., wall thinkness $\geq 1.4$ mm (insulation – 19 mm thick)	Mtr.	3399.0
22.39.4	28.6 mm O.D., wall thinkness $\geq 1.2$ mm (insulation – 19 mm thick)	Mtr.	2563.0
22.39.5	25 mm O.D., wall thinkness $\geq 1.2$ mm (insulation – 19 mm thick)	Mtr.	2124.0
22.39.6	22.2 mm O.D., wall thinkness $\geq 1.0$ mm (insulation – 19 mm thick)	Mtr.	1821.0

Code No.	Description	Unit	Complete Rate
22.39.7	19.1 mm O.D., wall thickness $\geq 1.0$ mm (insulation – 13 mm thick)	Mtr.	1295.0
22.39.8	15.9 mm O.D., wall thickness $\geq 0.8$ mm (insulation – 13 mm thick)	Mtr.	1066.0
22.39.9	12.7 mm O.D., wall thickness $\geq 0.8$ mm (insulation – 13 mm thick)	Mtr.	728.0
22.39.10	9.5 mm O.D., wall thickness $\geq 0.8$ mm (insulation – 13 mm thick)	Mtr.	553.0
22.39.11	6.4 mm O.D., wall thickness $\geq 0.8$ mm (insulation – 13 mm thick)	Mtr.	383.0
22.40	Providing & Fixing of IS : 4985 - 2000 Class -4 (10 Kgf / Sqcm) UPVC drain water piping with fittings (IS:7834 & 10Kgf/sqcm) like elbow, socket, Tee, solvent cement jointing, support with MS hanger on ceiling or recessed in wall with chasing & plastering with 6 mm thick closed cell elastomeric nitrile rubber insulation including leakage testing etc. as required of following Nominal sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.40.1	20 mm	Mtr.	189.0
22.40.2	25 mm	Mtr.	229.0
22.40.3	32 mm	Mtr.	296.0
22.40.4	40 mm	Mtr.	350.0
22.40.5	50 mm	Mtr.	431.0
22.40.6	63 mm	Mtr.	526.0
22.41	Supply, Fixing and testing of following capacity ISO certified company made wall mounted stabilizer having output voltage variation from 200 V to 250 V(+/-5%) with input voltage variation from 170 V to 260 V, time delay facility from 2 to 4 minute and high cutoff at 270 V with providing of 16 Amp /20 Amp Industrial plug top making connection etc complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.41.1	3 kVA	Each	2970.0
22.41.2	4 kVA	Each	3375.0
22.41.3	5 kVA	Each	4185.0
22.42	Making hole in stone masonry/ RCC wall/ RCC slab with core cutter for accomodating refrigerant pipe/ drain pipe/ MS pipe/ cables etc of following dia		
22.42.1	50 mm dia per running inch length	per inch	80.0
22.42.2	100 mm dia per running inch length	per inch	160.0
22.42.3	150 mm dia per running inch length	per inch	241.0

Code No.	Description	Unit	Complete Rate
22.42.4	200 mm dia per running inch length	per inch	334.0
22.43	Providing and making wall openings in existing stone / Brick masonry partition wall complete with all required T & P , Scaffolding and providing lintel of required size and strength, repairing ,plastering and cleaning the site debris as required.	Cu. Ft.	738.0
22.45	Supply & fixing MS powder coated stand suitable for 1.0/1.5/ 2.0 Tr outdoor type of Split AC. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	580.0
22.46	Supply & fixing MS powder coated stand suitable for 2.5/3.0/4.0 Tr outdoor type of Split/Ductable/Tower AC. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1349.0
22.47	P & F of trap door for AHU / FCU's in existing false ceiling duly made from 12 mm thick laminated board, hinged with wooden frame of cheed wood size 50mm x 80mm, Frame suspended with MS strip 25 x 3 mm with ancor fastner min 8 supports from ceiling, Hinges, Locking arrangement etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq Mtr	5055.0
22.48	SITC of Condensate water Drain pump suitable to Install with Existing Split type AC Indoor unit , single phase, 230V, including all accessories of pump like discharge tube, filter, reservoir etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	6746.0
22.49	SITC of VRF OEM manufactured treated fresh air unit (TFA) equipped with pre-filter, fan section with low noise fan, multispeed motor, coil section with DX coil, outer cabinet, insulated drain pan, pipe connections etc. of following Nominal capacities with Tolerance +/- 5%. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.49.1	4.12 TR/635 CFM	Each	70176.0
22.49.2	6.6 TR/988 CFM	Each	107952.0
22.49.3	8.25 TR/1230 CFM	Each	126833.0

Code No.	Description	Unit	Complete Rate
22.49.4	10 TR/1750 CFM	Each	191621.0
22.49.5	13.2 TR/2050 CFM	Each	263161.0
22.49.6	16.5 TR/2150 CFM	Each	330623.0
22.51	Supply , Installation, Testing and Comissioning of IS:1475 marked self contained drinking water cooler with hermetically sealed compressor,non CFC refrigerent suitable for operation on 230V/1pH/50Hz AC supply,Full stainless steel (SS304)body (0.8 mm thick) and tank (0.5 mm thick) , stainless steel water tray,minimum two nos Brass Chrome plated faucets and suitable drainage system complete in all respect with required height MS fabricated and Painted Angle iron frame ( Cost of frame to be paid Extra )complete in all respect of the following capacity. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.51.1	cooling capacity 150 Ltr./Hr. and storage capacity 150 Ltrs	Each	75878.0
22.51.2	cooling capacity 60 Ltr./Hr. and storage capacity 120 Ltrs	Each	64428.0
22.51.3	cooling capacity 40 Ltr./Hr. and storage capacity 80 Ltrs	Each	57859.0
22.52	Supply and Installation of Box type EU13 Hepa Filter of 99.997% efficiency down to 0.3 micron particle size installed in zero leakage Aluminium frame as per ISO 14644-1 clean room including sealing and packing material cost like silicon and hardware cost and Labour cost for the dismantling of existing worn out filters & shifting the same to the store as required as under. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.52.1	305 mm Thick	Sq Mtr	40259.0
22.52.2	150 mm thick	Sq Mtr	29078.0
22.53	Supply and Installation of Box type EU13 Hepa Filter of 99.997% efficiency down to 0.3 micron particle size installed in zero leakage Aluminium frame as per ISO 14644-1 clean room including sealing and packing material cost like silicon and hardware cost and Labour cost. NABL accredated / appropriated lab testing reports with OEM certificate must submitted to engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.53.1	305 mm Thick	Sq Mtr	37858.0
22.53.2	150 mm thick	Sq Mtr	26700.0



Code No.	Description	Unit	Complete Rate
22.54	Providing & Fixing of ISO certified company made submersible pump of rating 18 W to 24 Watts ,minimum water discharge capacity 2800 LPH and suitable for central/large size desert cooler complete with making connections, testing etc as required. NABL accredited / appropriated lab testing reports with OEM certificate must submitted to engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	each	1139.0
22.55	Dismantling of split air conditioner of any capacity/any type including existing indoor unit & outdoor unit , refrigerant piping , connecting cables , drain pipe etc. including shifting of dismantled material to store complete as required	Job	936.0
22.56	Providing & Fixing of 26 SWG thick Aluminium sheet cladding on existing refrigerant copper pipe /insulated chiller pipe or any other surface with nut & bolts complete as required. All as per pre approved by Engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq Mtr	617.0
22.57	Providing & Fixing of BIS certified Oil filled radiator having following fins with temperature control setting sound free operation with minimum 1 year warranty & temperature setting, Rated Voltage:-230 V, Rated Wattage:-2400 W made out from CRCA sheet with powder coating, tubular type element castor wheel, 1.5 mtr PVC power cord along with 16 Amp plug top. net weight should not be less then 12 Kg and minimum dimensions are 520 X 165 X 710mm complete in all respect. NABL accredited / appropriated lab testing reports with OEM certificate must submitted to engineer in charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
22.57.1	9 Fins	Each	15799.0
22.57.2	11 Fins	Each	18365.0
22.57.3	13 Fins	Each	20121.0

Code No.	Description	Unit	Complete Rate
22.58	Supply & fixing of evaporative cooling Celdec pads of 200mm Thick made out from impregnated cellulose paper media of imported origin including fixing in Air washer complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sq.ft	742.00
22.59	SITC of Interconnecting refrigerant copper pipe for split/Ductable/ Casseette AC of DHE Grade C12200- ASTM B68, B75, chemical composition of copper %- 99.0 Min and Phosphorus %- 0.015 to 0.040 . For Annealed copper tube :- Tensile strength = 210 Mpa wih elongation % = 40 Min . Ink Mark Brand Printing on Hard Tubes should be present. Piping between each set of indoor & outdoor units of different sizes as per OEM requirement & specifications including class 'O' Nitrile rubber sleeves, chase cutting, supports, making good the same with sand cement plaster etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Kg	1987.00

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### Substation Equipments

Code No.	Description	Unit	Complete Rate
23.1	<p>Supply installation testing &amp; Commissioning of Copper wound distribution Transformer of following rating and % Impedance, 11/0.433KV Delta-Star Connected, Vector Group Dyn 11, ONAN Cooled losses as per IS 1180 part I 2014 (Fourth Revision) Level-1, with boltless core design including standard accessories like conservator with prismatic oil level gauge, silica gel breather, Buchholz relay, pressed steel radiator fins, Radiator Valve(above 800 Kva) Suitable size HT cable box, LT cable box with Busbar connection for outgoing cables, Off -LTC (+/- 2.5%, +/- 5% to - 7.5% ), temperature rise of 40 degree C in oil / 45 degree C in winding, drain valve, Air release device, Dial type Oil &amp; Winding Temperature gauge with alarm &amp; trip contacts, first filling of transformer oil as per IS :335-1953, Epoxy primer and PU based paint as Top coat, Unidirectional rollers for rating upto 800 kva &amp; bi- directionalabove 800 Kva rollers with locking arrangement etc. as required. The Transformer shall be subjected to routine factory tests (as per IS:2026 and IS:1180) including Temperature rise test in OEM's own lab shall be witnessed by Department engineer Physically.</p> <p>Transformer shall be tested from CTL of discom before charging of transformer &amp; complete installaion must be certified from Electrical Inspectorate office as per Indian Electricity rule, (CTL testing charges and Electrical Inspection charges shall be reimbursed by the department to the contractor)Following tests shall be carried out on each transformer at site by OEM enginer in presence of department authorised representative:- a) Ratio test on each tapping.b) Resistance of windings at principal and all tapings.c) Insulation resistance of the winding between HV to earth / HV to LV / LV to earth.d) Vector group test.e) Magnetic Balance test. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work, refer Annexure "A" attached with this BSR.</p>		
23.1.1	500 KVA with % Impedance 4.5	Each	1665580.0
23.1.2	630 KVA with % Impedance 4.5	Each	1918965.0
23.1.3	800 KVA with % Impedance 4.5	Each	2169269.0
23.1.4	1000 KVA with % Impedance 5.0	Each	2583252.0
23.1.5	1250 KVA with % Impedance 5.0	Each	2910231.0
23.1.6	1600 KVA with % Impedance 6.25	Each	3161324.0
23.1.7	2000 KVA with % Impedance 6.25	Each	3619014.0
23.1.8	2500 KVA with % Impedance 6.25	Each	4116435.0
23.2	<p>S I T C of star rated Aluminium wound distribution Transformer of following rating 11/0.433KV Delta-Star Connected, Vector Group Dyn 11,ONAN Cooled &amp; as per BEE star - 1 &amp; BIS approved as per IS 2026- 1977 &amp; losses as defined as per 2014 (Fourth Revision) Level-1. including standard accessories like conservator, silica gel breather, radiator, fins, HT cable box &amp; LT cable boxes, temperature rise in winding/oil 35-40 degree C upto 200 KVA &amp; 40-45 degree C for above 200 KVA, ISI marked drain valve, Dial type Temperature gauge, first filling of transformer oil as per IS :335-1953, Epoxy based paint, including carrying of pre-commission Testing &amp; Charging of Transformer complete in all respect.</p>		

Code No.	Description	Unit	Complete Rate
	The Transformer shall be subjected to routine factory tests (as per IS:2026 and IS:1180) including testing from CTL of discom before charging of transformer & complete installaion must be certified from Electrical Inspectorate office as per Indian Electricity rule, (CTL testing charges and Electrical Inspection charges shall be reimbursed by the department to the contractor). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
23.2.1	63 KVA	Each	197732.0
23.2.2	100 KVA	Each	255138.0
23.2.3	160KVA	Each	318922.0
23.2.4	200 KVA	Each	401842.0
23.2.5	250 KVA with Off -LTC (+5% to - 10% @ 2.5%)	Each	427356.0
23.2.6	315 KVA with Off -LTC (+5% to - 10% @ 2.5%)	Each	619551.0
23.2.7	400 KVA with Off -LTC (+5% to - 10% @ 2.5%)	Each	744713.0
23.2.8	500 KVA with Off -LTC (+5% to - 10% @ 2.5%)	Each	872656.0
23.3	SITC of Marshalling box fabricated out of 2.0 mm thick sheet steel, provided with water tight hinged doors with padlock arrangement, neoprene gasket all around door to make enclosure water and dust proof (IP-55). Space Heater, Illumination lamp, 5A switch & Socket, MCB, Viewing window, detachable gland plate completely wired, ready for external connections at the terminal blocks. All wirings shall be carried out with 1100 V grade PVC insulated stranded conductors. Power circuits if any shall be wired with stranded copper conductors of adequate sizes to suit the rated current. The minimum size shall be 2.5 sq.mm. Control, alarm and indication circuits, shall be wired with stranded copper conductor of sizes not smaller than 1.5 sq. mm. CT circuits shall be wired with stranded copper conductor of size not smaller than 4 sq.mm. including 150 mm dia. Winding temperature indicator with A&T contacts, 150 mm dia. Oil temperature indicator with A&T contacts , 150 mm dia. Magnetic Oil level Gauge ( MOG) with alarm contact, double float type Buchholz relay with isolating valves on both sides and as per IS: 3637 with A&T Contacts etc. as required.	Each	107158.00
	All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
23.4	Supply & Installation of D.P. Structure With AIR BREAK SWITCH having following specifications A, B, C, D, E. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR . A) Double pole structure on 2 no ISMB ( I beam ) of size 150 x 75 mm, 10 mtr length using 7 no MS channel each of size 100 mm x 50 mm x 2500 mm complete in all respect with nuts, springs washers, clamps as required.  B) Off load type gang operated 3-pole vertical flute type switch suitable for 11KV ; 400A ,3-Ø, central post rotating double break isolator complete with MS hardware , copper moving & fixed contact ,assembly of 9 nos pin insulator ,GI pipe of suitable length for operation. C) 3nos Vertical / Horizontal mounted 11kv horn gap fuse set /drop out 11kv barrel fuses mounted on 6no pin insulators		

Code No.	Description	Unit	Complete Rate
	D) 3 piece non linear resistor type. lighting arrestor of approved make suitable for 3 wire, 11kv Overhead line with rated voltage of 9kv rms & nominal discharge current rating of 5 ka & complete with galvanized clamping arrangement GI bolts. nuts. washer etc as required. E) 3 no 11kv ACSR conductors mounted on pin type insularors as required. 6.GENERAL:The go shall be operated by hand operated liver properly earthed with provision for locking mounted at 3'	Set	102164.0
23.5	SITC of 11kv 630 Amps 21KA for 3 Sec. SF6 insulated, outdoor duty (IP54) , Extensible / Non extensible type Ring main unit (RMU) manually operated in combination of VCB modules and Load Break switch consisting of Copper busbar in SF6 insulated 304 (Non-Ferrite Non-Magnetic Grade) stainless steel enclosure of thickness 2.5mm with manometer. The HV switchgear and control gear should be confirming to IEC-62271-100, IEC-62271-200-2003 & IEC-60694-1996. The RMU should be internal arc tested for 21KA for 1Second with IAC-AFL classification for gas tank. Vacum Interrupter of VCB should be RMU Manufacturer's own make. Each feeder of RMU should have voltage presence indicator. . and compring of followings:- 1 no. microprocessor based Self powered numerical relay with over Current/ earth fault & short circuit protection with each VCB feeder. - 3 Nos. Protection CT shall be of Burden 2.5VA, ratio 50/1A, Class of Accuracy class 5P10 for O/C and E/F protection for each VCB.- 1 No. Manometer for each tank,- 1 nos. Fault Passage indicator,- Right angle boots for all the feeder Modules All the type test certificates as per IEC from Third party NABL / CPRI / ERDA accredited lab to be submitted. (Cost of RCC Foundation / Steel Structure to be paid Extra) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR		
23.5.1	Non Extensible 3 way RMU with 1 no. VCB & 2 No. Load Break Switch	Each	438067.0
23.5.2	Extensible 3 way RMU with 1 no. VCB & 2 No. Load Break Switch	Each	465880.0
23.5.3	Extensible 2 way RMU with 1 no. VCB & 1 No. Load Break Switch	Each	382439.0
23.5.4	Non Extensible 1 way RMU with 1 no. VCB & Direct Cable Entry	Each	340718.0
23.6	SITC of Indoor Type Floor mounted metal clad 11 KV, 630 Amps 3 phase, 50 Hz Vacuum Circuit Breaker (VCB) <b>Panel Fabricated in VCB Manufacturer's own Factory</b> as per IEC 62271-1,100,200 Standard made from Powder painted pre-fabricated, CRCA sheet steel /High quality Aluminium-Zinc (Aluzinc) coated sheet steel. Fabrication shall be done through CNC turret press and CNC bending machine having a rupturing capacity of 500 MVA, 26.3 KA breaking capacity for 3 sec, Internal arc type tested for 26.3KA for 1 sec with AFLR clasification totally enclosed with Aluminium bus bar of 630 Amps for each phase, flush front, Horizontal isolation, Horizontal drawout type with Electrical and Mechanical interlock and automatic safety shutter gear including padlocking arrangement, isolation plugs, assambly of 3 vaccum interrupters (VCB manufacturer's own make) , with each pole individually encapsulated by epoxy insulations to make it dust proof and self - aligning finger type isolating contacts, truck having integral racking with necessary interlocks (for insertion and removing of VCB), manual and automatic motor charged independent closing/ tripping spring , trip free operating mechanism with closing and tripping push buttons and mechanical breaker.		

Code No.	Description	Unit	Complete Rate
	interconnected with HT sleeve bus bar of 630 Amps , Basic Insulation level (BIL) : 28KV (RMS) / 75KV (Peak) and Altitude less than 1000 meters, including all protection, indication, Operation, monitoring and control and accessories etc. as required. .Factory Tests of VCB panel as per OEM's QAP in it's own Manufacturing facility shall be witnessed by department Engineer virtually / Physically. (Cost of RCC Foundation / Steel Structure to be paid Extra) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
23.6.1	<b>Incoming Cum Outgoing Panel comprising of Side cable box &amp; Transformer Auxiliary protection and comprising of following.</b> <ul style="list-style-type: none"> <li>- VCB 630 Amps . VI of VCB should be sealed for 30000 operation. VCB operationing mechanism should be of M2 duty for minimum 10000 mechanical operation.</li> <li>- Closing &amp; tripping coil of VCB should be of continuous rating to achieve minimal failure.</li> <li>- Resin Cast type CT having Ratio : 400-200A/ 1-1 A, Core1: 5P20, 5 VA; Core 2: 0.5, 5 VA (How ever CT Ratio shall be decided as per load requirement)</li> <li>- VT Ratio: 11KV/1.732/110V/1.732/110V/1.732, -Core 1: 0.5, 20VA should be floor mounted and to be connected from the back side of the panel.</li> <li>- Numerical relay (should be VCB manufacturer's own make) having protections of 50,51, 50N,51N,TCS. The relay shall have programable 4 digital Input , programable 6 Digital Output and programable 4 nos. LED at HMI.</li> <li>- Ammeter with Selectorswitch and Volt meter with Selector switch</li> <li>- Multifunction Meter of Acc Class 0.5, having facility to monitor KW, KVA, KVAR, PF, KWH, KVARH, KVAH, A,V etc.</li> <li>- Trip circuit supervision relay (feature of numerical relay)</li> <li>- LR, TNC switch, indication lamp - CB ON/OFF, spring charge, Auto trip, TCS healthy etc., Space heaters</li> <li>- Power Pack (230V AC- 110V DC) and 8/12 window Annunciator.</li> </ul>	Each	869180.0

Code No.	Description	Unit	Complete Rate
23.6.2	<b>Incoming Panel comprising of following:</b> <ul style="list-style-type: none"> <li>- VCB 630 Amps . VI of VCB should be sealed for 30000 operation. VCB operating mechanism should be of M2 duty for minimum 10000 mechanical operation.</li> <li>- Closing &amp; tripping coil of VCB should be of continuous rating to achieve minimal failure.</li> <li>- Resin Cast type CT having Ratio : 400-200A/ 1-1 A, Core1: 5P20, 5 VA; Core 2: 0.5, 5 VA (How ever CT Ratio shall be decided as per load requirement)</li> <li>- VT Ratio: 11KV/1.732/110V/1.732/110V/1.732, -Core 1: 0.5, 20VA should be floor mounted and to be connected from the back side of the panel.</li> <li>- Numerical relay (should be VCB manufacturer's own make) having protections of 50,51, 50N,51N,TCS. The relay shall have programable 4 digital Input , programable 6 Digital Output and programable 4 nos. LED at HMI.</li> <li>- Ammeter with Selectorswitch and Volt meter with Selector switch</li> <li>- Multifunction Meter of Acc Class 0.5, having facility to monitor KW, KVA, KVAR, PF, KWH, KVARH, KVAH, A,V etc.</li> <li>- Trip circuit supervision relay (feature of numerical relay)</li> <li>- LR, TNC switch, indication lamp - CB ON/OFF, spring charge, Auto trip, TCS healthy etc., Space heaters</li> <li>- Power Pack (230V AC- 110V DC) and 8/12 window Annunciator.</li> </ul>	Each	848319.0
23.6.3	<b>Outgoing Panel comprising of following:</b> <ul style="list-style-type: none"> <li>- VCB 630 Amps . VI of VCB should be sealed for 30000 operation. VCB operating mechanism should be of M2 duty for minimum 10000 mechanical operation.</li> <li>- Closing &amp; tripping coil of VCB should be of continuous rating to achieve minimal failure.</li> <li>- Resin Cast type CT having Ratio : 400-200A/ 1-1 A, Core1: 5P20, 5 VA; Core 2: 0.5, 5 VA (How ever CT Ratio shall be decided as per load requirement)</li> <li>- Numerical relay (should be VCB manufacturer's own make) having protections of 50,51, 50N,51N,TCS. The relay shall have programable 4 digital Input , programable 6 Digital Output and programable 4 nos. LED at HMI.</li> <li>- Ammeter with Selectorswitch and Volt meter with Selector switch</li> <li>- Multifunction Meter of Acc Class 0.5, having facility to monitor KW, KVA, KVAR, PF, KWH, KVARH, KVAH, A,V etc.</li> <li>- Trip circuit supervision relay (feature of numerical relay)</li> <li>- LR, TNC switch, indication lamp - CB ON/OFF, spring charge, Auto trip, TCS healthy etc., Space heaters</li> <li>- Power Pack (230V AC- 110V DC)</li> </ul>	Each	813552.0
23.6.4	<b>Bus Coupler Panel comprising of following:</b> <ul style="list-style-type: none"> <li>-VCB 630 Amps . VI of VCB should be sealed for 30000 operation. VCB operating mechanism should be of M2 duty for minimum 10000 mechanical operation.</li> <li>- Closing &amp; tripping coil of VCB should be of continuous rating to achieve minimal failure.</li> <li>- LR, TNC switch, indication lamp - CB ON/OFF, spring charge, Space heaters</li> <li>- Power Pack (230V AC- 110V DC)</li> </ul>	Each	764878.0

Code No.	Description	Unit	Complete Rate
23.7	<p>SITC of Indoor Type Floor mounted metal clad 11 KV, 630 Amps 3 phase, 50 Hz Vacuum Circuit Breaker (VCB) <b>Panel Fabricated by System Integrator of VCB Manufacturer</b> as per IEC 62271-1,100,200 Standard made from Powder painted pre-fabricated, CRCA sheet steel /High quality Aluminium-Zinc (Aluzinc) coated sheet steel. Fabrication shall be done through CNC turret press and CNC bending machine having a rupturing capacity of 500 MVA, 26.3 KA breaking capacity for 3 sec, Internal arc type tested for 26.3KA for 1 sec with AFLR clasification totally enclosed with Aluminium bus bar of 630 Amps for each phase, flush front, Horizontal isolation, Horizontal drawout type with Electrical and Mechanical interlock and automatic safety shutter gear including padlocking arrangement, isolation plugs, assambly of 3 vaccum interrupters (VCB manufacturer's own make) , with each pole individually encapsulated by epoxy insulations to make it dust proof and self - aligning finger type isolating contacts, truck having integral racking with necessary interlocks (for insertion and removing of VCB), manual and automatic motor charged independent closing/ tripping spring , trip free operating mechanism with closing and tripping push buttons and mechanical breaker.</p> <p>interconnected with HT sleeve bus bar of 630 Amps , Basic Insulation level (BIL) : 28KV (RMS) / 75KV (Peak) and Altiude less than 1000 meters, including all protection, indication, Operation, monitoring and control and accessories etc. as required. Factory Tests of VCB panel as per System Integrator's QAP in it's own Manufacturing facility shall be witnessed by department Engineer virtually / Physically. (Cost of RCC Foundation / Steel Structure to be paid Extra). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>		
23.7.1	<p><b>Incoming Cum Outgoing Panel comprising of Side cable box &amp; Transformer Auxiliary protection and comprising of following.</b></p> <ul style="list-style-type: none"> <li>- VCB 630 Amps . VI of VCB should be sealed for 30000 operation. VCB operating mechanism should be of M2 duty for minimum 10000 mechanical operation.</li> <li>- Closing &amp; tripping coil of VCB should be of continious rating to achive minimal failure.</li> <li>- Resin Cast type CT having Ratio : 400-200A/ 1-1 A, Core1: 5P20, 5 VA; Core 2: 0.5, 5 VA (How ever CT Ratio shall be decided as per load requirement)</li> <li>- VT Ratio: 11KV/1.732/110V/1.732/110V/1.732, -Core 1: 0.5, 20VA should be floor mounted and to be connected from the back side of the panel.</li> <li>- Numerical relay (should be VCB manufacturer's own make) having protections of 50,51, 50N,51N,TCS. The relay shall have programable 4 digital Input , programable 6 Digital Output and programable 4 nos. LED at HMI.</li> <li>- Ammeter with Selectorswitch and Volt meter with Selector switch</li> <li>- Multifunction Meter of Acc Class 0.5, having facility to monitor KW, KVA, KVAR, PF, KWH, KVARH, KVAH, A,V etc.</li> <li>- Trip circuit supervision relay (feature of numerical relay)</li> <li>- LR, TNC switch, indication lamp - CB ON/OFF, spring charge, Auto trip, TCS healthy etc., Space heaters</li> <li>- Power Pack (230V AC- 110V DC) and 8/12 window Annunciator.</li> </ul>	Each	625809.0



Code No.	Description	Unit	Complete Rate
23.7.2	<b>Incoming Panel comprising of following:</b> <ul style="list-style-type: none"> <li>- VCB 630 Amps . VI of VCB should be sealed for 30000 operation. VCB operating mechanism should be of M2 duty for minimum 10000 mechanical operation.</li> <li>- Closing &amp; tripping coil of VCB should be of continuous rating to achieve minimal failure.</li> <li>- Resin Cast type CT having Ratio : 400-200A/ 1-1 A, Core1: 5P20, 5 VA; Core 2: 0.5, 5 VA (How ever CT Ratio shall be decided as per load requirement)</li> <li>- VT Ratio: 11KV/1.732/110V/1.732/110V/1.732, -Core 1: 0.5, 20VA should be floor mounted and to be connected from the back side of the panel.</li> <li>- Numerical relay (should be VCB manufacturer's own make) having protections of 50,51, 50N,51N,TCS. The relay shall have programable 4 digital Input , programable 6 Digital Output and programable 4 nos. LED at HMI.</li> <li>- Ammeter with Selectorswitch and Volt meter with Selector switch</li> <li>- Multifunction Meter of Acc Class 0.5, having facility to monitor KW, KVA, KVAR, PF, KWH, KVARH, KVAH, A,V etc.</li> <li>- Trip circuit supervision relay (feature of numerical relay)</li> <li>- LR, TNC switch, indication lamp - CB ON/OFF, spring charge, Auto trip, TCS healthy etc., Space heaters</li> <li>- Power Pack (230V AC- 110V DC) and 8/12 window Annunciator.</li> </ul>	Each	604949.0
23.7.3	<b>Outgoing Panel comprising of following:</b> <ul style="list-style-type: none"> <li>- VCB 630 Amps . VI of VCB should be sealed for 30000 operation. VCB operating mechanism should be of M2 duty for minimum 10000 mechanical operation.</li> <li>- Closing &amp; tripping coil of VCB should be of continuous rating to achieve minimal failure.</li> <li>- Resin Cast type CT having Ratio : 400-200A/ 1-1 A, Core1: 5P20, 5 VA; Core 2: 0.5, 5 VA (How ever CT Ratio shall be decided as per load requirement)</li> <li>- Numerical relay (should be VCB manufacturer's own make) having protections of 50,51, 50N,51N,TCS. The relay shall have programable 4 digital Input , programable 6 Digital Output and programable 4 nos. LED at HMI.</li> <li>- Ammeter with Selectorswitch and Volt meter with Selector switch</li> <li>- Multifunction Meter of Acc Class 0.5, having facility to monitor KW, KVA, KVAR, PF, KWH, KVARH, KVAH, A,V etc.</li> <li>- Trip circuit supervision relay (feature of numerical relay)</li> <li>- LR, TNC switch, indication lamp - CB ON/OFF, spring charge, Auto trip, TCS healthy etc., Space heaters</li> <li>- Power Pack (230V AC- 110V DC)</li> </ul>	Each	584089.0
23.7.4	<b>Bus Coupler Panel comprising of following:</b> <ul style="list-style-type: none"> <li>-VCB 630 Amps . VI of VCB should be sealed for 30000 operation. VCB operating mechanism should be of M2 duty for minimum 10000 mechanical operation.</li> <li>- Closing &amp; tripping coil of VCB should be of continuous rating to achieve minimal failure.</li> <li>- LR, TNC switch, indication lamp - CB ON/OFF, spring charge, Space heaters</li> <li>- Power Pack (230V AC- 110V DC)</li> </ul>	Each	549322.0

Code No.	Description	Unit	Complete Rate
23.8	<p>SITC of 11 kV Outdoor Package Sub-Station <b>Factory Assembled and Factory fitted by RMU &amp; LT Switchgear OEM of Following Transformer &amp; ACB Rating</b> and consisting of A, B, C, D &amp; E (Cost of RCC Foundation / Steel Structure to be paid Extra). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p> <p><b>A) HT Compartment:</b> Ring Main Unit 11kV 630 Amps 21KA for 3 Sec. SF6 insulated, non-extensible, Ring main unit consisting of 2 nos. manually operated Load Break Switch and 1 Nos. 630 Amp Vacuum Circuit Breaker (manually operated) with Copper busbar in SF6 insulated stainless steel enclosure of thickness 2.5mm Non ferrite nonmagnetic type 304 grade. Interconnection between HT switchgear and transformer by Suitable Sized Aluminium un-armoured HT XLPE Cable. The HV switchgear and control gear should be confirming to IEC-62271-100, IEC-62271-200-2003 &amp; IEC-60694-1996. The Gas tank of the RMU should be internal arc tested for 20KA for 1Second. VI should be RMU Manufacturer's own make.</p> <ul style="list-style-type: none"> <li>- 1 no. microprocessor based Self powered numerical relay with over Current/earth fault &amp; short circuit protection with each VCB feeder.</li> <li>- 3 Nos. Protection CT shall be of Burden 2.5VA, ratio 50/1A, Class of Accuracy class 5P10 for O/C and E/F protection for each VCB feeder</li> <li>- 1 No. Manometer</li> <li>- 1 No. Fault Passage Indicator for each Load Break switch.</li> </ul> <p><b>B) Transformer:</b> 11kV/433V, 3phase,50 HZ, Copper wound Dry Type outdoor type step down transformer having delta connection on primary side and star connection on secondary side complete with all modern fitting as given in the specification , off load tap changer (-10% +5% in the step of 2.5%) etc. as required as per compete with losses as latest ECBC Standards , Class H with 115 Deg temperature rise allowed .</p> <p>- 1 No. Winding Temperature Indicator with Alarm and trip Contc</p> <p><b>C) LV Compartment:</b> Incoming cum Outgoing with One number Fixed type 4 pole 415V ACB with molded case construction having breaking capacity 50KA with <math>I_{cs} = I_{cu} = I_{cw}</math> (1 sec) = 50KA with microprocessor release for over current, earth fault &amp; short circuit protections. Interconnection between Transformer &amp; LT switchgear using Aluminum Bus bars of ACB Current rating with heat shrinkable colored sleeves</p> <p><b>D) The Outdoor enclosure</b> shall be made of 1.5 mm mm thickness Galvanized Sheet Steel tropicalised to meet Indian weather conditions including all the partition Sheets &amp; doors. The enclosure base shall be of 4.0 mm thickness Hot Dip Galvanized Sheet Steel. The entire Package Substation shall be Factory Assemble &amp; Factory Fitted. The enclosure shall have IP54 degree of protection for HT &amp; LT switchgear compartment IP-23 degree of protection for Transformer compartment. The Enclosure should be type tested for Internal Arc fault test to the tune of at least 21 KA for 1 second adhering to as per latest IEC 62271- 202. The offered enclosure should be type tested for K10 class temperature raise. TTR to be submitted. The enclosure exterior shall be powder coated. The compartment illumination lamp with door operated switch shall be provided for MV &amp; LV compartment. Internal earthing connections by using 50x6mm GI Strips. Vacuum Interrupter, RMU, Transformer, LV switchgear, Outdoor enclosure should be of same make for better life cycle optimization.</p>		

Code No.	Description	Unit	Complete Rate
	<b>E) All the Type test certificates of RMU, Transformer &amp; LT Switchgear will be provided by Manufacturer and factory Tests of Package Substation as per OEM's QAP in it's own Manufacturing facility shall be witnessed by department Engineer virtually / Physically</b>		
23.8.1	Transformer Capacity 250 KVA, ACB Rating 630 Amps.	Each	3268116.0
23.8.2	Transformer Capacity 500 KVA, ACB Rating 1000 Amps.	Each	4081668.0
23.8.3	Transformer Capacity 630 KVA, ACB Rating 1250 Amps.	Each	4603176.0
23.8.4	Transformer Capacity 750 KVA, ACB Rating 1600 Amps.	Each	5041242.0
23.8.5	Transformer Capacity 1000 KVA, ACB Rating 2000 Amps.	Each	5632285.0
23.9	SITC of battery bank of min 150 AH capacity comprising SMF/VRLA batteries, FCBC ( Float cum boost charger)suitable for 415V +/-10%, 50 Hz , 1- $\phi$ / 3 - $\phi$ Input & 24/ 48 /110 V DC Output Natural Cooled, free standing in Sheet Steel enclosure,SCR controlled , regulation +/-1% , Efficiency > 75% on FLAC/ DC Instruments, Selector Switch ,Built in DC Distribution Board (6 No MCB), indication , control as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	134656.0
23.10	SITC of following capacity IK10 Sandwich Type Rising Mains / Bus Duct Confirming to IEC 61439 part 1 & part 6 standard & IS 8623 P-II and Manufactured in India for use on 3 phase 4 wire , 50% internal earth , 415 volts, 50Hz A.C. supply , class F insulation, rated insulation voltage 1000V, impulse withstand voltage 12 KV, min. seismic zone 4 as per IS1892, with IP-54 / IP-66 (With Canopy) enclosure made of 1.6mm thick sheet steel duly powder coated in convenient sections complete with 4 Nos aluminium (with 6101 or 63401 grade) bus bars, necessary joints & expansion joints, fire barrier at each floor, provision of tapping at every metre, continuous earthing with 2 Nos aluminium strip of suitable size (one on each side) including, G.I. clamping brackets, angle iron bracket, steel fasteners, connecting to earthing system including making opening in RCC / Brick Masonary and repairing the same etc. as required. Type Tests reports like (i) Short Circuit Test (ii) Degree of Protection (iii) Temperature rise test of Rising main in CPRI / UL / ASTA accredited lab will be submitted by OEM.  Routine test as per OEM's QAP in It's own Manufacturing facility in India shall be witnessed by department Engineer virtually / Physically. Complete Installation of Rising Mains shall be Vetted by Manufacturer before Comissioning. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
<b>23.10.1</b>	<b>Sandwich Type Bus Rising Main</b>		
23.10.1.1	400 amps 25 KA SC for 1 sec	Mtr	17683.0
23.10.1.2	500 amps 30 KA SC for 1 sec	Mtr	19389.0
23.10.1.3	630 amps 40 KA SC for 1 sec	Mtr	21142.0
23.10.1.4	800 amps 50 KA SC for 1 sec	Mtr	24586.0
23.10.1.5	1000 amps 50 KA SC for 1 sec	Mtr	27455.0
23.10.1.6	1250 amps 50 KA SC for 1 sec	Mtr	31333.0
23.10.1.7	1600 amps 50 KA SC for 1 sec	Mtr	37693.0

Code No.	Description	Unit	Complete Rate
23.10.1.8	2000 amps 65 KA SC for 1 sec	Mtr	46845.0
<b>23.10.2</b>	<b>Sandwich Type Bus Duct</b>		
23.10.2.1	1000 Amps 50kA SC for 1 sec	Mtr	21251.0
23.10.2.2	1250 Amps 65kA SC for 1 sec	Mtr	24043.0
23.10.2.3	1600 Amps 80kA SC for 1 sec	Mtr	29782.0
23.10.2.4	2000 Amps 80kA SC for 1 sec	Mtr	38313.0
23.10.2.5	2500 Amps 120kA SC for 1 sec	Mtr	51033.0
23.10.2.6	3200 Amps 120kA SC for 1 sec	Mtr	57393.0
23.10.2.7	4000 Amps 120kA SC for 1 sec	Mtr	72904.0
23.10.2.8	5000 Amps 120kA SC for 1 sec	Mtr	93845.0
<b>23.10.3</b>	<b>Out Door Bus Duct IP66 with Canopy</b>		
23.10.3.1	1000 Amps 50kA SC for 1 sec	Mtr	24818.0
23.10.3.2	1250 Amps 65kA SC for 1 sec	Mtr	27921.0
23.10.3.3	1600 Amps 80kA SC for 1 sec	Mtr	35211.0
23.10.3.4	2000 Amps 80kA SC for 1 sec	Mtr	43277.0
23.10.3.5	2500 Amps 120kA SC for 1 sec	Mtr	58944.0
23.10.3.6	3200 Amps 120kA SC for 1 sec	Mtr	66700.0
23.10.3.7	4000 Amps 120kA SC for 1 sec	Mtr	83894.0
23.10.3.8	5000 Amps 120kA SC for 1 sec	Mtr	105789.0
<b>23.11</b>	<b>SITC of Bus Rising Main OEM manufactured following capacity End Feed Unit Confirming to ANSI C37.23 standard &amp; IS 8623 P-II suitable for Sandwich / Compact Air Insulated type for use on 3 phase 4 wire 415 volts, 50Hz A.C. supply made with 1.6mm thick steel sheet enclosure duly powder coated with provision of MCCB/ACB (but without MCCB/ACB), Interlocking feature complete with necessary joints including clamping brackets, angle iron bracket, steel fasteners, connecting to earthing system etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</b>		
23.11.1	For 200 Amp. (Without MCCB)	Each	11634.0
23.11.2	For 250 Amp. (Without MCCB)	Each	12099.0
23.11.3	For 325 Amp. (Without MCCB)	Each	12719.0
23.11.4	For 400 Amp. (Without MCCB)	Each	18611.0
23.11.5	For 500 Amp. (Without MCCB)	Each	20142.0
23.11.6	For 630 Amp. (Without MCCB)	Each	22741.0
23.11.7	For 800 Amp. (Without MCCB)	Each	26311.0
23.11.8	For 1000/1250 Amp. (Without ACB)	Each	106874.0
23.11.9	For 1600 Amp. (Without ACB)	Each	124402.0
23.11.10	For 2000 Amp. (Without ACB)	Each	153099.0

Code No.	Description	Unit	Complete Rate
23.12	<p>SITC of following capacity IK10 Compact Air Insulated Rising Mains / Bus Bar trunking Confirming to IEC 61439 part 1 &amp; part 6 standard &amp; IS 8623 P-II and Manufactured in India for use on 3 phase 4 wire , 50% internal earth , 415 volts, 50Hz A.C. supply , The busbars shall be supported through class "F" Insulator at interval not exceeding 250mm. impulse withstand voltage 12 KV, min. seismic zone 4 as per IS1892, with IP-54 enclosure made of 1.6mm thick sheet steel duly powder coated in convenient sections complete with 4 Nos aluminium (with 6101 or 63401 grade) bus bars, necessary joints &amp; expansion joints, fire barrier at each floor, provision of tapping at every metre, continuous earthing with 2 Nos aluminium strip of suitable size (one on each side) including, G.I. clamping brackets, angle iron bracket, steel fasteners, connecting to earthing system including making opening in RCC / Brick Masonary and repairing the same etc. as required.</p> <p>Type Tests reports like (i) Short Circuit Test (ii) Degree of Protection (iii) Temperature rise test of Rising main in CPRI / UL / ASTA accredited lab will be submitted by OEM &amp; Routine test as per OEM's QAP in It's own Manufacturing facility in India shall be witnessed by department Engineer virtually / Physically. Complete Installation of Rising Mains shall be Vetted by Manufacturer before Comissioning. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>		
23.12.1	200 amps 10 KA SC for 1 sec	Mtr	11013.0
23.12.2	250 amps 15 KA SC for 1 sec	Mtr	11479.0
23.12.3	315 amps 25 KA SC for 1 sec	Mtr	12642.0
23.12.4	400 amps 30 KA SC for 1 sec	Mtr	14115.0
23.12.5	500 amps 35 KA SC for 1 sec	Mtr	15977.0
23.12.6	630 amps 50 KA SC for 1 sec	Mtr	18924.0
23.12.7	800 amps 50 KA SC for 1 sec	Mtr	24477.00
23.12.8	1000 amps 50 KA SC for 1 sec	Mtr	27300.00
23.13	<p>SITC of Bus Rising Main OEM manufactured following capacity Plug in / Tap off Box suitable for Sandwich / Compact Air Insulated type bus bar trunking Confirming to ANSI C37.23 standard &amp; IS 8623 P-II &amp; IEC-60947-2-2000 for use on 3 phase 4 wire 415 volts, 50Hz A.C. supply made with 1.6mm thick steel sheet enclosure duly powder coated with provision of MCB/MCCB / ACB (but without MCB/MCCB/ACB) with Interlocking complete with necessary joints including clamping brackets, angle iron bracket, steel fasteners, connecting to earthing system etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>		
<b>23.13.1</b>	<b>Plug in Box suitable for Sandwich Type Bus rising Main</b>		
23.13.1.1	up to 32 amps (Suitable for MCB) without MCB Without Interlocking	Each	7446.0
23.13.1.2	63 amps (Suitable for MCCB) without MCCB	Each	9462.0
23.13.1.3	100/125 amps (Suitable for MCCB) without MCCB	Each	9772.0
23.13.1.4	160/200/250 amps (Suitable for MCCB) without MCCB	Each	11634.0
23.13.1.5	400 amps (Suitable for MCCB) without MCCB	Each	15356.0
23.13.1.6	500 / 630 amps (Suitable for MCCB) without MCCB	Each	21561.0
<b>23.13.2</b>	<b>Plug in Box suitable for Compact Air Insulated Type Bus rising Main</b>		
23.13.2.1	up to 32 amps (Suitable for MCB) without MCB Without Interlocking	Each	6360.0

Code No.	Description	Unit	Complete Rate
23.13.2.2	63 amps (Suitable for MCCB) without MCCB	Each	8299.0
23.13.2.3	100/125 amps (Suitable for MCCB) without MCCB	Each	8531.0
23.13.2.4	160/200/250 amps (Suitable for MCCB) without MCCB	Each	10548.0
23.13.2.5	400 amps (Suitable for MCCB) without MCCB	Each	13805.0
23.13.2.6	630 amps (Suitable for MCCB) without MCCB	Each	18459.0
23.14	SITC of Bus Rising Main OEM manufactured Tinned copper flexible joint with enclosure of following capacity with Transformer / DG / Panel as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
23.14.1	1000 Amp. Rating	Each	48086.0
23.14.2	1250 Amp.	Each	69802.0
23.14.3	1600 Amp.	Each	85313.0
23.14.4	2000 Amp.	Each	131848.0
23.14.5	2500 Amp.	Each	162871.0
23.14.6	3200 Amp.	Each	204752.0
23.14.7	4000 Amp.	Each	266798.0
23.14.8	5000 Amp.	Each	333498.0
23.15	SITC of following capacity bus trunking with aluminium bus bars, The busbars shall be supported through class "F" Insulator, Enclosure made of 1.6mm thick sheet steel duly powder coated in convenient sections for use on, 3 phase, 4 wire, 415 V, 50 Hz, A.C. supply including jointing of sections, flexible joints, expansion joints, bends and earthing with 2 runs of galvanised iron strips, suspenders, angle iron bracket, steel fasteners, connecting to earthing system etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
23.15.1	800 Amp.	Mtr	12750.0
23.15.2	1000 Amp.	Mtr	15822.0
23.15.3	1250 Amp.	Mtr	18769.0
23.15.4	1600 Amp.	Mtr	22957.0
23.15.5	2000 Amp.	Mtr	27921.0
23.16	SITC of HT metering cubical panel as approved By DISCOMs fabricated out of 18 SWG CRCA sheet steel in two compartment & MS angle of size 60mmX 6mm having provision for Following: (i) Provision for fixing Trivector / Import - Export Meter (To be supplied by DISCOMs) (ii) Provision for fixing of combined CT PT Set with Copper strip for Connection (To be supplied by DISCOMs), (iii) Test terminal Block, (iv) 6mm thick Bakelite sheet on all sides, (v) 3/6 corex 1.5 / 2.5 Sq.mm copper cable for interconnections, etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	32051.0
23.17	SITC of Radiator Cooled and Turbo charged Silent DG Set (As per latest CPCB emission norms) having specifications as per A, B, C, D, E, F, G, H & I		

Code No.	Description	Unit	Complete Rate
	<p><b>A)</b> 1500 RPM Diesel Engine conforming to BS:649/5514 of suitable BHP (up to 82.5 kVA 6 cylinder or Below required, 125 kVA &amp; Above ratings 6 cylinder or above required) capable of taking 10% over loading for one hour after 12 hours of continuous operation., Dry exhaust manifold with Hospital grade silencer and catalytic convertor(isolated from main DG chamber), up to 3 M exhaust piping (with LRB insulation &amp; Alum. cladding) as required .</p> <p><b>B)</b> AC Brush less SPDP Alternator conform to BS 5000 (part 99) or IS/IEC 60034-1. . Alternator shall be self regulated with standard Alternator Protection( Over voltage , over speed &amp; under voltage, under speed warning &amp; shutdown).Engine &amp; Alternator mounted on a common base Frame &amp; coupled through a flexible coupling or close coupled</p> <p><b>C) CPCB / ARAI approved</b> Standard canopy with Weatherproof, powdercoated Accoustic enclosure for DG set for sound attenuation fabricated from 1.6 mm CRCA sheet steel (structure) with sidewall fabricated from 1.6 mm CRCA sheet &amp; filled with glasswool (96Kg/m3) / Foam. as per IS8183 the doors of 28/40/50/85mm thick as perrating and fabricated from 1.6mm CRCA sheet packed with accoustic material, All doors/opening are sealed with neoprene /EPDNgaskets. The DG Set has Inbuilt / External in fuel tank to run 6 to 8 Hrs as per OEM standard, with protection and tripping of DG set against temperature of more than 50 degree centigrade.</p> <p><b>D)</b> Electronic / Mechanical governor, Manual &amp; electric Start ,Batteries with battry charger, Engine instruments panel,AVM pads All controls for operation of DG set are from outside the enclosure with DG control panel having Microprocessor based Genset monitoring like Running Hour, RPM, Low Lube Oil tripping &amp; control system, Panel mounted MCCB/ACB of suitable rating, Ammeter, Voltmeter, PF meter, frequency meter, KWH meter,digital fuel display meter, Ind.lamps etc. mounted inside enclosure , visible and accessible from outside. The enclosure should be suitable for following capacity DG sets and alternator. Noise level shall be less than 75 dB at a distance of 1 Mtrs. duly certified by authorised agency etc. complete in all respect of following capacity :</p> <p><b>E)</b> (i) Accoustic glass wool wall thickness should not be less then 40mm and not less then 20mm PU foam upto rating 100 KVA. (ii).Accoustic glass wool wall thickness should not be less then 65mm and not less then 50mm PU foam upto rating 250 KVA. (iii)Accoustic glass wool wall thickness should not be less then 100mm for rating above 250 KVA.</p> <p><b>F)</b> First filling of the fuel tank shall be done by contractor and the prevailing fuel cost at that time shall be reimbursed to the contactor by department.</p> <p><b>G)</b> Servicing Contract of DG Set from OEM's Authorised Service Dealer as per OEM guidelines during the DLP period shall be done by contractor including all consumables, actual charges shall be reimbursed to the contractor by End User Department.</p> <p><b>H)</b> Manufacturer / OEM must have its authorized service dealer in Rajasthan. Which can provide service within 6 Hours of compalint registration.</p> <p><b>I)</b> DG set will be offered for Inspection and Testing at Manufacturer's Works in presence of Departmental Engineers. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>		
23.17.1	20 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	498872.0

Code No.	Description	Unit	Complete Rate
23.17.2	25 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	478546.0
23.17.3	30 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	509457.0
23.17.4	40 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	617432.0
23.17.5	50 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	703132.0
23.17.6	62.5 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	733247.0
23.17.7	82.5 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	886085.0
23.17.8	100 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	1049657.0
23.17.9	125 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	1072760.0
23.17.10	140 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	1373796.0
23.17.11	160 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	1481181.0
23.17.12	180 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	1620674.0
23.17.13	200 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	1759163.0
23.17.14	250 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	2137495.0
23.17.15	320 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	2693450.0
23.17.16	400 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	3318649.0
23.17.17	500 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	3952709.0
23.17.18	625 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	4844006.0
23.17.19	750 KVA at 0.8 pf 415V 50Hz 3-Ø	Set	6228007.0
23.18	Providing, Fixing, Jointing, Testing & Commissioning of Medium duty MS B class pipes conforming to IS 3589 / 1239 part-I for DG Exhaust applications (beyond 1.5 Mtr. length) including cutting, welding etc & fittings like elbows, flanges, tapers, reducer, gaskets etc. fixing the pipe on the wall/ceiling with suitable clamps, hanger and nuts bolts . including the cost of thermal insulation with 50 mm thick layers of LRB rock wool as per IS : 8183-1993 (64 kg/m3 density) & 26 SWG aluminium sheet claddings etc complete as required complete in all respect. (Cost of Steel Structure for Exhaust pipe will be paid Extra). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
23.18.1	80 mm dia	Mtr.	2453.0
23.18.2	100 mm dia	Mtr.	3441.0
23.18.3	125 mm dia	Mtr.	4462.0
23.18.4	150 mm dia	Mtr.	5270.0
23.18.5	200 mm dia	Mtr.	8175.0
23.18.6	250 mm Dia.	Mtr.	10810.0
23.19	Supply, installation and testing of metal flexible coupling (bellow) of following dia required for horizontal length more than 3 mtr.as per standard of guide line of D.G. set company complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
23.19.1	80 mm dia	Each	14054.0
23.19.2	100 mm dia	Each	16290.0
23.19.3	125 mm dia	Each	18526.0
23.19.4	150 mm dia	Each	23212.0



Code No.	Description	Unit	Complete Rate
23.19.5	200 mm dia	Each	26566.0
23.19.6	250 mm Dia.	Each	35564.0
23.20	Supply & fabrication steel structure with MS channel / angle / joist / ISMB / sheet etc. including welding, rivetting, cutting, nut & bolt , one coat of primer & two coat of enamel paint etc. as required complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Kg	135.0
23.21	Earth work in excavation/ by mechanical means (Hydraulic Excavator) / Manual means over areas (exceeding 30 cm in depth, 1.5m in width as well as 10 sum on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled and neatly dressed:	Cum	213.0
23.22	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with Cement Mortar 1:6 ( 1-Cement : 6-Sand).	Cum.	6699.0
23.23	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.	Kg	101.0
23.24	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level		
23.24.1	1:2:4 (1 cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources)	Cum.	4977.0
23.24.2	1:3:6 (1 Cement : 3 coarse sand (zone-III) derived from natural sources : 6 graded stone aggregate 20 mm nominal size derived from natural sources)	Cum.	4707.00
23.24.3	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum.	4437.00
23.25	Plaster on new surface on wall in cement sand mortar 1:4 including racking of joints etc. complete fine finish :		
23.25.1	20mm thick	Sqm	471.00
23.25.2	12mm thick	Sqm	376.00
23.26	Finishing wall with water proofing cement paint of approved brand and manufacture and or required shade to give an even shade including all scaffolding:		
23.26.1	New work (Two or more coats applied @ 3.84 kg/10 sqm).	Sqm	121.00

Code No.	Description	Unit	Complete Rate
23.27	Providing and fixing welded mesh/expanded metal mesh 25 mmx 25 mm x 3mm in frame work, flat iron beading 20x3mm including top cross laps inside and out sides welding, iron bolts, crews, clips etc. including two coat of red oxide and two coat of enamel paint or more required complete with frame work with 50 X 50 X 6mm angle iron post 30 cm in ground embeded in cement concrete 1:3:6 (30X30X45cm) at corner and every three mtr including painting with one coat of primer and two coat of enamel paint work will be done as per direction of engineer incharge of size complete in all respect. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sqm	1617.00
23.28	Gravelling of Transformer / RMU Yard with 100 mm Height Gravels of Size 20 to 25 mm including leveling, Dressing etc. as Required.	Sqm	1347.00
23.29	SITC of PLC Based Auto main failure (AMF) Panel fabricated from CRCA sheet steel 2 mmThick , Powder coated finish , Engine Start & Stop commands, control Relays , Ammeter & Voltmeter with selector switches, Control & 2 nos 4 pole Power Contactors with 2 no. of required size 4 pole MCCB, Timers, Electronic Hooter ,Visual & Alarm indication for faults, UPS, operator interface panel complete in all respect suitable for following capacity DG sets: Appropriate Test Certificate/ report of product/accessories from OEM/Panel Manufacturer shall be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
23.29.1	20 to 40 KVA	Set	71132.00
23.29.2	50 to 82.5 KVA	Set	85454.00
23.29.3	100 to 140 KVA	Set	106936.00
23.29.4	160 to 200 KVA	Set	146082.00
23.29.5	250 KVA	Set	189047.00
23.29.6	320 KVA	Set	210529.00
23.29.7	380 KVA	Set	232011.00
23.29.8	500 KVA	Set	278318.00

## Chapter E - 24

### Fire protection work

Code No.	Description	Unit	Complete Rate
24.1	<p>Supplying, Installation, Testing &amp; Commissioning of Electrical Driven fire fighting duty pump as per TAC and IS 12469-1988., Factory assembled in Pump make OEM for Sprinkler / Hydrant applications suitable for automatic operation and consisting of following details given as A, B, C, D, E, F, G and H.</p> <p>(A) End Suction / Horizontal Axially split casing volute type Single / Multi stage Centrifugal pump complete for delivery of below mentioned discharge and Head</p> <p>(B) Material of construction : Pump Casing - Cast Iron, Impellor - Bronze, Shaft - SS 410, Packing - Mechanical Seal</p> <p>(C) Pump shall be capable of furnishing not less than 150 % of rated capacity at a head not less than 65 % of the rated head. The shut off head shall not exceed 120 % of rated head</p> <p>(D) Squirrel cage induction motor (IE-3 Class) suitable for 3 phase, 415 V, 50 HZ, Ac supply , Class -F Insulation, Synchronous speed 2900 / 1500 RPM, T.E.F.C confirming to IP:55 , of required HP suitable for the above pump ,along with flexible (Love Joy type) coupling , coupling guard complete in all respect .</p> <p>( E ) Common bed plate fabricated from mild steel channel for installation of pump and Motor including anti vibration pads.</p> <p>(F) The Hydrostatic tests (2 times of design operating head or 1.5 times the shut off head whichever is higher) and performance tests (to determine developed head, Pump BHP and efficiency v/s Flow) of pumps along with trip test shall be carried out at manufacturer's works in Physical presence of Department's representatives.</p> <p>(G) Physical &amp; Chemical Test reports of i) Pump casing (ii) Impeller (iii) Shaft (iv) Shaft sleeve and Dynamic Balance certificate is to be submitted by OEM</p> <p>(H) Suitable size Reinforced cement concrete (M-30) foundation with foundation bolt, Nozing Angle of size 40mm x40mm x5 mm ( Cost of RCC Foundation to be paid Extra ). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .</p>		
24.1.1	1620 LPM suitable for 56 Mtr Head End Suction Back pull type Single Stage, 2900 RPM	Each	290,996.00
24.1.2	1620 LPM suitable for 70 Mtr Head End Suction Back pull type Single Stage, 2900 RPM	Each	295,165.00
24.1.3	1620 LPM suitable for 88 Mtr Head Horizontal Axially split casing volute type Two stage, 1500 RPM	Each	741,468.00
24.1.4	2280 LPM suitable for 56 Mtr Head End Suction Back pull type Single Stage, 2900 RPM	Each	400,221.00
24.1.5	2280 LPM suitable for 70 Mtr Head End Suction Back pull type Single Stage, 2900 RPM	Each	418,616.00

Code No.	Description	Unit	Complete Rate
24.1.6	2280 LPM suitable for 88 Mtr Head Horizontal Axially split casing volute type Two stage, 1500 RPM	Each	776,070.00
24.1.7	2850 LPM suitable for 56 Mtr Head End Suction Back pull type Single Stage, 2900 RPM	Each	428,685.00
24.1.8	2850 LPM suitable for 70 Mtr Head Horizontal Axially split casing volute type Two stage, 1500 RPM	Each	740,500.00
24.1.9	2850 LPM suitable for 88 Mtr Head Horizontal Axially split casing volute type Two stage, 1500 RPM	Each	873,004.00
24.2	<p>Supplying, Installation, Testing &amp; Commissioning of Diesel Engine Driven fire fighting duty pump as per TAC and IS 12469-1988., Factory assembled in Pump make OEM for Sprinkler / Hydrant applications suitable for automatic operation and consisting of following details given as A, B, C, D, E, F, G and H.</p> <p>(A) End Suction / Horizontal Axially split casing volute type Single / Multi stage Centrifugal pump complete for delivery of below mentioned discharge and Head</p> <p>(B) Material of construction : Pump Casing - Cast Iron, Impellor - Bronze, Shaft - SS 410, Packing - Mechanical Seal</p> <p>(C) Pump shall be capable of furnishing not less than 150 % of rated capacity at a head not less than 65 % of the rated head. The shut off head shall not exceed 120 % of rated head</p> <p>(D) Heat Exchanger cooled Diesel Engine as per NFPA 20 developing suitable BHP for the below mentioned discharge at 1500 / 1800 RPM, flexible coupling and coupling guard with the Pump, common bed plate for mounting of the Engine and Pump, Antivibration damping arrangement by cushy foot, Diesel Engine starting Panel for starting of the engine automatically if the Normal electrical supply fails with a unit of battery bank of 12/24v, 180 Ah, Lead Acid Battery with Boost / Trickle charger as required for operation of Diesel engine, Exhaust Pipe of suitable diameter upto 10 M length (with LRB insulation &amp; Alum. Cladding), with muffler, Diesel tank of 300 Lts capacity (made out from 2 mm thick MS sheet with filling Cap) with drain cock, Diesel level Indicator, Suitable MS angle iron stand for placing tank, first Filling of Diesel tank.</p> <p>(E) Diesel Engine Control comprising Automatic/Manual selector switch &amp; 3 attempts starting device, timers and relays as required, push buttons, start/stop in manual mode Indicating lamp for high/ Low Lub. Oil pressure, High Water Temp and Engine on indication, Battery charger suitable for 12V/24 V DC with boost and trickle selector switch, 0-30 V DC volt meter, and 0- 20 A DC Ammeter, All standard relays and accessories for automatic operation of diesel engine System Controller in Existing Fire Fighting Control panel</p> <p>(F) The Hydrostatic tests (2 times of design operating head or 1.5 times the shut off head whichever is higher) and performance tests (to determine developed head, Pump BHP and efficiency v/s Flow) of pumps along with trip test shall be carried out at manufacturer's works in Physical presence of Department's representatives.</p>		

Code No.	Description	Unit	Complete Rate
	(G) Physical & Chemical Test reports of i) Pump casing (ii) Impeller (iii) Shaft (iv) Shaft sleeve and Dynamic Balance certificate is to be submitted by OEM		
	(H) Pump to be placed on Suitable size Existing Reinforced cement concrete (M-30) foundation with foundation bolt, Nozing Angle of size 40mm x40mm x5 mm ( Cost of RCC Foundation to be paid Extra ). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.2.1	1620 LPM suitable for 56 Mtr Head End Suction Back pull type Single Stage, 1800 / 2300 RPM	Each	623555.0
24.2.2	1620 LPM suitable for 70 Mtr Head End Suction Back pull type Single Stage, 1800 / 2300 RPM	Each	672465.0
24.2.3	1620 LPM suitable for 88 Mtr Head Horizontal Axially split casing volute type Two stage, 1500 RPM	Each	863788.0
24.2.4	2280 LPM suitable for 56 Mtr Head End Suction Back pull type Single Stage, 1800 / 2300 RPM	Each	623555.0
24.2.5	2280 LPM suitable for 70 Mtr Head End Suction Back pull type Single Stage, 1800 / 2300 RPM	Each	853042.0
24.2.6	2280 LPM suitable for 88 Mtr Head Horizontal Axially split casing volute type Two stage, 1500 RPM	Each	1110656.0
24.2.7	2850 LPM suitable for 56 Mtr Head End Suction Back pull type Single Stage, 1800 / 2300 RPM	Each	610237.0
24.2.8	2850 LPM suitable for 70 Mtr Head Horizontal Axially split casing volute type Two stage, 1500 RPM	Each	817114.0
24.2.9	2850 LPM suitable for 88 Mtr Head Horizontal Axially split casing volute type Two stage, 1500 RPM	Each	1143034.0
24.3	<p>Supplying, Installation, Testing &amp; Commissioning of Electrical Driven fire fighting duty Jockey pump as per TAC and IS 12469-1988., Factory assembled in Pump make OEM suitable for automatic operation and consisting of following details given as A, B, C, D, E,F and G</p> <p>(A) Horizontal End suction Single / Multi Stage Centrifugal Back pull type pump complete for delivery of below mentioned discharge and Head</p> <p>(B) Material of construction : Pump Casing - Cast Iron, Impellor - Bronze, Shaft - SS 410, Packing - Mechanical Seal</p> <p>(C) Squirrel cage induction motor (IE-3 Class) suitable for 3 phase, 415 V, 50 HZ, Ac supply , Class -F Insulation, Synchronous speed not Exceeding 2900 RPM, T.E.F.C confirming to IP:55 , of required HP suitable for the above pump ,along with flexible (Love Joy type) coupling , coupling guard complete in all respect .</p> <p>(D) Common bed plate fabricated from mild steel channel for installation of pump and Motor including anti vibration pads.</p> <p>(E) The Hydrostatic tests (2 times of design operating head or 1.5 times the shut off head whichever is higher) and performance tests (to determine developed head, Pump BHP and efficiency v/s Flow) of pumps along with trip test shall be carried out at manufacturer's works in Virtual / Physical presence of Department's representatives.</p>		

Code No.	Description	Unit	Complete Rate
	(F) Physical & Chemical Test reports of i) Pump casing (ii) Impeller (iii) Shaft (iv) Shaft sleeve and Dynamic Balance certificate is to be submitted by OEM		
	(G) Suitable size Reinforced cement concrete (M-30) foundation with foundation bolt, Nozing Angle of size 40mm x40mm x5 mm ( Cost of RCC Foundation to be paid Extra ) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.3.1	180 LPM suitable for 88 Mtr Multi Stage	Each	186055.0
24.3.2	180 LPM suitable for 70 Mtr Single Stage	Each	160359.0
24.3.3	180 LPM suitable for 56 Mtr Single Stage	Each	152021.0
24.4	<p>Supplying, Installation, Testing &amp; Commissioning of Electrical Driven fire fighting duty Terrace pump as per TAC and IS 12469-1988., Factory assembled in Pump make OEM suitable for automatic operation and consisting of following details given as A. B. C. D. E. F. G and H.</p> <p>(A) Horizontal End suction Centrifugal Back pull type pump complete for delivery of below mentioned discharge and Head</p> <p>(B) Material of construction : Pump Casing - Cast Iron, Impellor - Bronze, Shaft - SS 410, Packing - Mechanical Seal</p> <p>(C) Squirrel cage induction motor (IE-3 Class) suitable for 3 phase, 415 V, 50 HZ, Ac supply , Class -F Insulation, Synchronous speed not Exceeding 3000 RPM, T.E.F.C confirming to IP:55 , of required HP suitable for the above pump ,along with flexible (Love Joy type) coupling , coupling guard complete in all respect .</p> <p>(D) Common bed plate fabricated from mild steel channel for installation of pump and Motor including anti vibration pads.</p> <p>(E) The Hydrostatic tests (2 times of design operating head or 1.5 times the shut off head whichever is higher) and performance tests (to determine developed head, Pump BHP and efficiency v/s Flow) of pumps along with trip test shall be carried out at manufacturer's works in Virtual / Physical presence of Department's representatives.</p> <p>(F) Physical &amp; Chemical Test reports of i) Pump casing (ii) Impeller (iii) Shaft (iv) Shaft sleeve and Dynamic Balance certificate is to be submitted by OEM</p> <p>(G) Suitable size Reinforced cement concreat (M-30) foundation with foundation bolt, Nozing Angle of size 40mm x40mm x5 mm ( Cost of RCC Foundation to be paid Extra )</p> <p>(H) Weather proof hood fabricated from 5mm thick UV stablised FRP sheet supported by 50 mm x 50 mm x 5 mm Angle Iron fram above pumpset to protect it from weather All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this RSR .</p>		
24.4.1	450 LPM with 35 mtr head	Each	119796.0
24.4.2	900 LPM with 35 mtr head	Each	157612.0

Code No.	Description	Unit	Complete Rate
24.5	Supplying, Installation, Testing & Commissioning submersible type dewatering pump of stainless steel casing and Noryl impellor of discharge and head given below complete with all accessories suitable for operation on 230 V, single phase/415 V /3 phase, 50 Hz. AC supply complete with starter for automatic operation including water level sensing device / float switch inter connection with submersible cable etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.5.1	180 LPM with 10 mtr head	Each	28565.0
24.6	SITC of pressure switches of pressure range 3 to 15 Bar for Main, Jockey, Terrace pump and Diesel pumps, Etc. as Required ( Control Cable from Pressure switch to Panel to be Paid Extra ). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR	Each	2024.0
24.7	Providing and fixing 20/25 mm dia. (PN - 1.6, Type-S1, Flanged, ISI marked) air release valve confirming to IS - 14845 : 2000 with Double Flange isolating valve (pressure rating PN 1.6) complete with 1 no. Matching Flanges (Minimum 10 mm thick), nuts, bolts, washers, gaskets etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	7012.0
24.8	SITC of UL listed and FM Approved Polyethelene vane type water flow switch with actuation & delay mechanism for sensitivity in the range of 4 to 10 GPM and suitable for installation in following sizes of Sprinkler pipe for a Static pressure rating up to 250 PSI in cluding making connections, making hole in pipe for inserting the vane etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.8.1	80 mm Dia.	Each	6074.0
24.8.2	100 mm Dia.	Each	7558.0
24.8.3	150 mm Dia.	Each	9042.0
24.9	SITC of suitable Pressure release valve of 50 mm dia, of CI body, with pressure setting range 7-15 kg/sqcm, on discharge header / Air Vessel, complete in all respect etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	7627.0
24.10	Providing & fixing pressure transducer in M.S. Pipe line (pressure range 0 to 10 kg/cm <sup>2</sup> ) suitable for 12 volts/24 volt DC. Including connection etc. as required. ( Control Cable from Pressure Transducer to Panel to be Paid Extra ). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	9383.0

Code No.	Description	Unit	Complete Rate
24.11	SITC of UL listed / FM Approved Brass Test and drain valve assembly for sprinkler system comprising of 3-position ( off, test and Drain ) ball valves with drain orifice having K-factor 5.6 and maximum working pressure 300 PSI and Inbuilt sight glass etc. as required of following size. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.11.1	25 mm Dia.	Each	6345.0
24.11.4	50 mm Dia.	Each	13999.0
24.12	Providing, Fixing, Jointing, Testing & Commissioning of Heavy duty MS 'C' class (Heavy) pipes conforming to IS 3589 / 1239 part-I for hydrant and sprinkler applications including cutting, screwing, welding etc. & forged steel fittings like elbows, tees, tapers, reducer, gaskets etc. fixing the pipe on the wall/ceiling with suitable clamps, hanger and nuts bolts including cutting hole and chase in brick or RCC walls/ slab and making good the same. complete with painting of one coats of Red Oxide and two or more coats of synthetic enamel paint of required shade complete as required. (Pipe to be tested @ 10Kgf/Sqcm for 2 Hrs.). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.12.1	25 mm dia	Mtr.	457.0
24.12.2	32 mm dia	Mtr.	587.0
24.12.3	40 mm dia	Mtr.	682.0
24.12.4	50 mm dia	Mtr.	954.0
24.12.5	65 mm dia	Mtr.	1218.0
24.12.6	80 mm dia	Mtr.	1508.0
24.12.7	100 mm dia	Mtr.	2172.0
24.12.9	150 mm dia	Mtr.	3202.0
24.12.10	200 mm dia, 6.0 mm thick	Mtr.	4852.0
24.12.11	250 mm dia, 6.35 mm thick	Mtr.	6031.0
24.12.12	300 mm dia., 7.0 mm thick	Mtr.	8003.0
24.13	Providing, Fixing, Jointing, Testing & Commissioning of Heavy duty MS 'C' class (Heavy) pipe conforming to IS 3589 / 1239 part-I for hydrant and sprinkler applications in Existing trench with cement concrete block as supports including cutting, welding etc & forged steel fittings like elbows, tees, tapers, reducer with cleaning,wrapping and coating of the pipe with 4 mm thick tar based polymaric corrosion protection tape including applying uniform coat of cold pipekot primer as per IS; 10221 for protection against corrosion complete in all respect. ( Pipe to be tested @ 10Kgf/Sqcm for 2 Hrs. & Excavation of Trench and refilling of trench to be paid extra). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.13.1	80 mm dia	Mtr.	1599.0
24.13.2	100 mm dia	Mtr.	2300.0



Code No.	Description	Unit	Complete Rate
24.13.3	150 mm dia	Mtr.	3392.0
24.13.4	200 mm dia, 6.0 mm thick	Mtr.	5130.0
24.14	Providing, laying, testing & commissioning of 'C' class heavy duty G.I. pipe conforming to IS 1239 including welding, Forged GI fittings like elbows, tees, tapers, nuts, bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required. (Pipe to be tested @ 10Kgf/Sqcm for 2 Hrs.). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.14.1	25 mm dia	Mtr.	493.0
24.14.2	32 mm dia	Mtr.	634.0
24.14.3	40 mm dia	Mtr.	737.0
24.14.4	50 mm dia	Mtr.	1034.0
24.14.5	65 mm dia	Mtr.	1318.0
24.14.6	80 mm dia	Mtr.	1632.0
24.14.7	100 mm dia	Mtr.	2303.0
24.14.8	150 mm dia	Mtr.	3345.0
24.15	Supplying and fixing cylindrical air vessel of continuous welded construction for pump room made of 450 mm dia,fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, 2000 mm in height with flanged connection, Provision for 25 mm dia drain valve,air release valve,safety valve pressure gauge as required accessories and painting with two coats of Red Oxide and two coat of post office red enamel paint including The tank shall be installed on suitable vertical legs. The legs shall be provided with M.S. Angle of size 75 mm x 75 mm x 5 mm at the bottom. The legs shall be grouted in cement concrete foundation. as required. ( Air Release valve, Drain valve, PRV, Pressure Gauge shall be Paid Extra ). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	40477.0
24.16	Supplying and fixing cylindrical air vessel of continuous welded construction fixed at riser top made of 250 mm dia, fabricated out of 8 mm thick MS sheet, 1200 mm in height with flanged connection, Provision for 25 mm dia drain valve,air release valve,safety valve pressure gauge as required accessories and painting with two coats of Red Oxide and two coat of post office red enamel paint including The tank shall be installed on suitable vertical legs. The legs shall be provided with M.S. Angle of size 75 mm x 75 mm x 5 mm at the bottom. The legs shall be grouted in cement concrete foundation. as required. ( Air Release valve, Drain valve, PRV, Pressure Gauge shall be Paid Extra ). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	9022.0

Code No.	Description	Unit	Complete Rate
24.17	Supplying and Fixing of PN 16 Flanged Y strainer fabricated out of cast iron body, SS 304 strainer with perforated screen with 3 mm. dia holes in existing MS / GI pipe complete with 2 no. Matching Flanges (Minimum 16 mm thick), nuts, bolts, washers, gaskets etc as required of following sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.17.1	80 mm dia	Each	8636.0
24.17.2	100 mm dia	Each	11828.0
24.17.3	150 mm dia	Each	23975.0
24.17.4	200 mm dia	Each	41966.0
24.17.5	250 mm dia	Each	63672.0
24.18	Supplying and Fixing of PN 16 Flanged <b>sluice valve</b> with non rising spindle, bronze /gun metal seat confirming to IS:14846 complete with 2 no. Matching Flanges (Minimum 16 mm thick), nuts, bolts, washers, gaskets, etc as required of following sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.18.1	80 mm dia	Each	12446.0
24.18.2	100 mm dia	Each	17631.0
24.18.3	150 mm dia	Each	27077.0
24.18.4	200 mm dia	Each	43892.0
24.18.5	250 mm dia	Each	64377.0
24.19	Providing and constructing masonry chamber 90 x 90 x 100 cms inside with brick work in cement mortar 1:5 (1cement : 5fine sand) for water meter ,M.S. cover (6mmthick sheet with locking arrangement, 600 x600 with M.S. frame etc. all epoxy coated and R.C.C. top slab 1:2:4 mix(1 Cement : 2 coarsesand : 4 graded stone aggregate 20mm nominalsize) including necessary excavation, back fillingfoundation concrete 1:5:10 mix (1 cement : 5 fine sand and 10 graded stone aggregate 20mmnominal size) leaving a pocket of 30x30 cmwith out concrete and filled with pebbles andinside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finishedwith a floating coat of neat cement and outside plaster finished rough complete. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	23568.0
24.20	Supplying and Fixing of PN 16 Cast Iron Dual Plate Wafer Type Check Valve / Non return valve with SS / Bronze flap complete with 2 no. Matching Flanges (Minimum 16 mm thick), nuts, bolts, washers, gaskets, etc as required of following sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.20.1	65 mm dia	Each	5423.0
24.20.2	80 mm dia	Each	6181.0

Code No.	Description	Unit	Complete Rate
24.20.3	100 mm dia	Each	7804.0
24.20.4	150 mm dia	Each	10541.0
24.20.5	200 mm dia	Each	22385.0
24.21	Supplying and Fixing of PN 1.6 Butterfly Valve (Wafer Type) with S.G Iron Disc and confirming to IS:13095 complete with 2 no. Matching Flanges (Minimum 16 mm thick), nuts, bolts, washers, gaskets, etc as required of following sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.21.1	50 mm dia	Each	3181.0
24.21.2	65 mm dia	Each	3452.0
24.21.3	80 mm dia	Each	3756.0
24.21.4	100 mm dia	Each	4891.0
24.21.5	150 mm dia	Each	7648.0
24.21.6	200 mm dia Gear Operated	Each	17320.0
24.21.7	250 mm dia Gear Operated	Each	27788.0
24.22	Supplying and Fixing of PN 16 Brass/GM Ball valves with screwed end, SS Ball including teflon tape etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.22.1	20 mm dia.	Each	1220.0
24.22.2	25 mm dia.	Each	1489.0
24.22.3	32 mm dia	Each	2841.0
24.22.4	40 mm dia	Each	3943.0
24.22.5	50 mm dia	Each	6164.0
24.23	Supplying and Fixing of Brass/GM gate valves with screwed end , Non rising stem and conforming to IS:778 Class-1 including teflon tape etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.23.1	20 mm dia.	Each	1318.0
24.23.2	25 mm dia.	Each	1977.0
24.23.3	32 mm dia	Each	2783.0
24.23.4	40 mm dia	Each	3689.0
24.23.5	50 mm dia	Each	5378.0

Code No.	Description	Unit	Complete Rate
24.24	SITC of installation control valve of cast iron body and brass/bronze working parts comprising of water motor alarm, bronze seat clapper, and clapper arm, hydraulically driven mechanical gong bell to sound continuous alarm when the wet riser/Sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, with 2 no. Matching Flanges (Minimum 16 mm thick), nuts, bolts, washers, gaskets, etc as required of following sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.24.1	100 mm	Each	48284.0
24.24.2	150 mm	Each	53186.0
24.25	Supplying and fixing of SS 304 Single / Double headed oblique pattern hydrant landing valve (internal/external) with 75 / 100 mm dia flanged inlet & 63 mm dia instantaneous type female outlet coupling with cast iron wheel complete with ABS cap and chain and all accessories as per IS:5290-93 (Type-A) including matching flange (14 mm thick), nuts, bolts, washers, gaskets, etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.25.1	Single Headed with 75 mm Dia. Flanged Inlet	Each	8022.0
24.25.2	Double Headed with 100 mm Dia. Flanged Inlet	Each	14686.0
24.26	Supplying and fixing orifice plate made of 6 mm thick stainless steel with orifice of required size in between flange & landing valve of external and internal hydrant to reduce pressure to working pressure of 3.5 kg/cm <sup>2</sup> complete with rubber gasket, GI bolts, nuts, washers etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1457.0
24.27	Supplying and fixing of flexible hose made with 100% polyester, black EPDM internal rubber lining with External coat of synthetic elastomer (IS:636, type-A) 63 mm dia, 15 mtr. Long RRL hose pipe with instantaneous type 63 mm dia SS-304 male and female couplings (IS:903) duly bound and riveted to hose pipes with copper rivets and SS wire etc. as required. Appropriate Test Certificate/ report with liable warranty of product/accessories from OEM shall be submitted.	Each	7596.0
24.28	Supplying & fixing SS-304 Short Branch Pipe conforming to IS: 903:93 fitted with 20mm (nominal internal diameter) bore nozzle, for projecting water in form of solid jet. The Branch shall have 63mm Male Instantaneous Inlet, suitable for use with 63 mm size Fire fighting hoses. H.P. tested to 21 kgf/cm <sup>2</sup> for 2.5 minutes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	2565.0

Code No.	Description	Unit	Complete Rate
24.29	Supplying and fixing first -Aid Fire hose reel Drum wall mounted swinging type with MS construction powder painted in post office Red, conforming to IS 884-1985 with upto date amendments, complete with the following as required. (A) Thermoplastic / Rubber Hose (B)20 mm dia UL, FM Bronze / SS nozzle with 5mm orifice (C)Drum and brackets for fixing the equipments on wall. (D) Connections from riser with 20/25 mm dia Brass/GM gate valves with screwed end and conforming to IS:778 Class-1 through Forged steel Screwed Union & M.S. pipe. Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.29.1	With 30 m x 20 mm Thermoplastic hose as per IS:12585 Type-2 and Bursting pressure 42 Kg/sqcm	Each	11872.0
24.29.2	With 30 m x 20 mm High Pressure Braided Rubber Hose as per IS:5132 - 1969 and Bursting pressure 42 Kg/sqcm	Each	12479.0
24.30	Supplying and fixing Inlet Breeching Connection of CI body with Gun Metal male instantaneous inlet couplings with Inbuilt NRV, Drainage Connection with 50 mm Brass gate valve complete with PVC blank cap and chain as required for 150mm dia Outlet with 1 no. Matching Flange (Minimum 16 mm thick), nuts, bolts, washers, gaskets, etc as required of following Ways. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.30.1	2 Way	Each	10214.0
24.30.2	3 Way	Each	12034.0
24.30.3	4 Way	Each	13854.0
24.31	Providing and fixing of 100 mm Dia. Flanged Gun Metal Fire brigade Suction hose coupling (draw out connection) for female coupling as per IS:902-1974 complete with Matching Flange (Minimum 14 mm thick), nuts, bolts, washers, gaskets, etc as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	10548.0
24.32	Supply and Fixing of Cast iron body one side Flanged and other side strainer ball type foot valve with Reinforced rubber Nitrile rubber coated Ball including Matching Flange (Minimum 16 mm thick), nuts, bolts, washers, gaskets, etc as required of following Sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.32.1	80 mm Dia.	Each	7226.0
24.32.2	100 mm Dia.	Each	11294.0
24.32.3	150 mm Dia.	Each	22742.0
24.32.4	200 mm Dia.	Each	45138.0

Code No.	Description	Unit	Complete Rate
24.33	Providing and Fixing of PN16 Resilient rubber lined single arch vibration eliminators suitable for raw water up to 45 deg. C temperature, working pressure 8.5 Kg/cm <sup>2</sup> and test pressure 14 Kg/cm <sup>2</sup> to provide relief from stresses at pipe including Matching Flange (Minimum 16 mm thick), nuts, bolts, washers, gaskets, etc as required of following Sizes. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.33.1	80 mm Dia. x 150 mm Oal	Each	8357.0
24.33.2	100 mm Dia. x 150 mm Oal	Each	10021.0
24.33.3	150 mm Dia. x 150 mm Oal	Each	12838.0
24.34	Supplying and fixing of <b>750 mm x 600 mm x 250 mm</b> Outdoor application Fire Hose Cabinet made of 1.6 mm thick MS sheet Duly powder coated in red color externally and white internally with 6 mm thick glazed doors with Expanded Metal 2 mm thick Jali including necessary locking arrangement suitable to accommodate 2 Nos 15 Mtr. Long RRL Hose and 1 No. branch pipe on Existing Wall / Angle Iron Frame as required. (Cost of MS structure for mounting Frame is to be Paid Extra) All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	5601.0
24.35	Supplying and fixing of <b>1000 mm x 600 mm x 500 mm</b> Outdoor application Fire Hose Cabinet made of 1.6 mm thick MS sheet Duly powder coated in red color externally and white internally with 6 mm thick glazed doors with Expanded Metal 2 mm thick Jali including necessary locking arrangement suitable to accommodate External hydrant with butterfly valve, 2 Nos 15 Mtr. Long RRL Hose and 1 No. branch pipe on Existing Wall / Angle Iron Frame as required. (Cost of MS structure for mounting Frame is to be Paid Extra). All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	16869.0
24.36	Providing and fixing of Fire / Electrical Shaft Door made from powder coated (50 Micron) aluminium partialy glazed with 6 mm thick glass and Partialy / Fully Louvered with Outer frame of Aluminium Section of Size 100 mm x 45 mm x 1.5 mm and Shutter's Top, Middle & side Section of Size 82 mm x 45 mm x 1.5 mm, Bottom Section of Size 110 mm x 45 mm x 1.5 mm Complete with Hinges, Tower bolt, Handle, Aldrop, Locking Arrangement including dash fasteners of required dia and size, necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. as per drawings and the directions of Engineer-in-charge. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Sqm	9852.0

Code No.	Description	Unit	Complete Rate
24.37	Providing and Fixing of 15 mm dia Bronze quartzoid bulb type <b>sprinkler heads</b> with Maximum working pressure 11.6 Kg / Sqcm and suitable for 68 degree centigrade rating standard response (UL Listed) chrome plated complete in all respect of the following type. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR		
24.37.1	Pendant/ Upright type	Each	290.0
24.37.2	Sidewall Sprinklers (ordinary)	Each	303.0
24.37.3	Extended Throw Sidewall type .	Each	506.0
24.37.4	Concealed type with Tin alloy fusible metal plate for temperature 57 degree Centigrade	Each	1046.0
24.38	Providing & fixing of UL listed 1.5 mm thick chrome plated Dual type MS Escutcheon plates fixed at junction of Sprinkler piping with the false ceiling. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	108.0
24.39	Supply & Fixing of Fire Man's Axe with carbon steel head & rubber moulde handel usable upto 20 KV and confirming to IS :926 with length approx 0.4 M & weight 3.0 Kg. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1918.0
24.40	Providing & fixing sprinkler flexible pipe (UL Listed) of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of following sizes complete as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.40.1	700 mm Long	Each	944.0
24.40.2	1000 mm Long	Each	1106.0
24.40.3	1200 mm Long	Each	1281.0
24.40.4	1500 mm Long	Each	1450.0
24.41	Providing & fixing Stainless Steel pressure gauge with dial of 150 mm dia size and range 0 to 20 kg/sq.cm with 3 / 8 " BSP bottom entry , Ball valve , SS Syphon tube all fittings etc, duly calibrated before installation in MKS and FPS units, Accuracy Level +/- 1% including Making Drilling in Existing MS Pipe Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	2632.0

Code No.	Description	Unit	Complete Rate
24.42	SITC of UL 10th edition / EN54 / VDS certified Automatic Floating Sensitivity type Analog addressable Multi criteria (two optical/Smoke sensor to reduce false alarm) detector with mounting base & LED etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	3104.0
24.43	SITC of UL 10th edition / EN54 / VDS certified Rate of Rise Heat Detectors (Thermal Detectors):GRADE-I Analogue Addressable type Heat Detectors with solid state design with sensing element combination of fixed type and rate of rise of temperature mounting base & LED etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	2969.0
24.44	SITC of UL 10th edition / EN54 / VDS certified Analogue Addressable type Multi criteria (Heat & smoke) Beam detector along with interface module having a coverage area with a distance of min. 10 m and max. 100 m ,Operating temperature range: -20 C to +55 C, Response sensitivity of 40% , shall UL/EN54 certification including transmitter and receiver unit with mounting base & LED etc including the cost of all accessories, mouting arrangement Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Set	48594.0
24.45	SITC of UL 10th edition / EN54 / VDS certified Addressable type fault isolator with base for isolating shorted, dewired and loose circuits between two successive fault, isolators with automatic resetting arrangement etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	2726.0
24.46	SITC of UL 10th edition / EN54 / VDS certified Addressable Manual Call point (MCP) with LED / FIRE Indication Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	3509.0
24.47	SITC of UL 10th edition / EN54 / VDS certified Addressable sounder with strobe light, Loop Powered / Direct powered from FACP with sound level 90 dB and programmable from the panel etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	8128.0



Code No.	Description	Unit	Complete Rate
24.48	SITC of UL 10th edition / EN54 / VDS certified addressable automatic fire detector for monitoring of ventilation ducts which can perform alarm pattern analysis, with even response sensitivity for all fires with smoke development with 1 no outlet tube & with 1 no. analogue addressable Photo Electric type Smoke Detector with mounting base , address switch etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	11203.0
24.49	SITC of Response Indicator for indicating the activation of the Remotely located Detector for Addressable type Detectors Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	269.0
24.50	SITC of UL 10th edition / EN54 / VDS certified Addressable control (input/output) modules/ Relay Module for shutting down lifts, Hooters, AHU's, Acknowledgement of Sprinkler system with potential free contact monitoring Etc. as Required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	5009.0
24.51	SITC of UL 10th edition / EN54 / VDS certified Microprocessor based intelligent, Analogue addressable, modular, expandable networkable loop Fire Alarm Control Panel with each loop capacity of min 125 detectors per loop with total of 125 detectors & devices with Loop length up to 1 KM as per NFPA 72 approval. The Panel shall be able to give pin point location of addressable units via the address code for each unit. The Panel shall also be able to automatically switch off all control switches when-ever any Alarm is triggered. . The panel shall have 230 + 5 % volts power supply, Automatic battery charger 24V, sealed lead acid maintenance free batteries sufficient for 24 hours normal working and then be capable of operating the system for 30 minutes during emergency condition. Loop interface cards, communication module, LCD/LED unit to indicate Fire / Fault Signal of individual unit, inbuilt networking port(both RS485&Ethernet), Serial port for printer, two supervisory inputs, two position key switch and USB port for programming. including the cost of all accessories Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.51.1	1 - Loop Panel	Each	222644.0
24.51.2	2 - Loop Panel	Each	296858.0
24.51.3	Add Extra for per Loop expansion beyond Two Loop	per Loop	67462.0
24.51.4	Add Extra for Graphics User Interface (GUI) Software for programming the fire detection and voice alarm system through FACP / PC.	Each	121485.0

Code No.	Description	Unit	Complete Rate
24.51.5	Add Extra for Workstation latest Intel® i5 processor, Intel Chipset motherboard, 08 GB RAM, 1 TB SATA HDD at 7200 rpm, with 2 x 4GB GPU type higher end Graphic card for H.265 compression technique with dual display ports/DVI/ HDMI port, Giga LAN Card, wireless Keyboard, wireless optical Mouse. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	91130.0
24.52	SITC of UL 10th edition / EN54 / VDS certified Active Repeater Panel for Fire Alarm System with inbuilt networking port (both RS485 & Ethernet),Serial port for printer,two supervisory inputs,two position key switch and USB port for programming. The Repeater Panel shall allow users to acknowledge, reset,silence, program, view history events.etc (All functions similar to main panel)The user interface of the repeater panel shall be same as the Main Controller with menu driven user interface with smart search.including the cost of all accessories Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	80967.0
24.53	SITC of UL 10th edition / EN54 / VDS certified 6 ZONE Digital Voice Command Center with FACP, it shall contain all equipment required for all audio control, signaling and supervisory functions. This shall include speaker zone indication and control, digital voice units, microphone etc. The Digital Voice Command Center shall have digital voice call station suitable for 6 zone, digital voice controller & router suitable for 6 zone, 4 nos 240 watt & 1no 480 watt amplifier & digital amplifier capable for 1440 watt load etc.including the cost of all accessories Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	124186.0
24.54	SITC of EN / LPCB/ UL listed / approved conventional automatic fire Alarm Optical/Photoelectric type smoke detectors of photo-optic sensing chamber, 12 / 24 volt D.C., visual alarm indicator (LED's) "Blink - green" in stand by and "Steady - red" in alarm complete in all respects with base as required.including the cost of all accessories Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1484.0
24.55	SITC of EN / LPCB/ UL listed / approved conventional automatic fire Alarm Rate of Rise cum fixed temperature thermister type Heat Detectors , 12 / 24 volt D.C., visual alarm indicator (LED's) "Blink - green" in stand by and "Steady - red" in alarm complete in all respects with base as required.including the cost of all accessories Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1416.0

Code No.	Description	Unit	Complete Rate
24.56	SITC of EN / LPCB/ UL listed / approved conventional type Manual call point resettable complete with Glass, hammer and chain etc.including the cost of all accessories Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR	Each	606.0
24.57	SITC of EN / LPCB/ UL listed / approved conventional type Hooter cum strobe including the cost of all accessories,Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	673.0
24.58	SITC of Response Indicator for indicating the activation of the Remotely located Detector for Conventional type detectors as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	269.0
24.59	SITC of wall type following zone (each zone accessing minimum 20 units (detectors/ devices )) Conventional Type microprocessor based with LCD display EN / LPCB/ UL listed / approved main control panel fabricated from 16 SWG CRCA sheet steel sealed maintenance free (SMF) batteries of min2X7AH of 12 V or as required.including the cost of all accessories, Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.59.1	4 zone	Each	40450.0
24.59.2	6 zone	Each	63383.0
24.59.3	Add extra for every 2 Zone	Each	16180.0
24.60	SITC of 2 way communication Fire Fighter's Telephone Jack.Complete as required . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	1753.0
24.61	SITC of 2 way communication Fire Fighter's Telephone Handset to make a call to the Main FACP from Telephone Jack Location Complete as required . All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	12222.0
24.62	Supplying and drawing Fire Resistant flexible / stranded bare copper conductor, PVC / XLPE insulated, overall aluminium mylar tape shielded ATC drain wire and outer PVC sheathed industrial Instrumentation (shielded)cables voltage grade 300/500 V as per BS /EN 50288-7 in existing surface or recessed PVC/ MS conduit/casing capping / Cable tray / Open Duct making connections, testing etc. as required. OEM Must have its own in house NABL lab setup for all testing facilities for cables. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		

Code No.	Description	Unit	Complete Rate
24.62.1	2 x 1.5 Sq.mm Unarmoured With Outer Sheath in Red Color	Mtr	94.0
24.62.2	2 x 1.5 Sq.mm Armoured With Outer Sheath in Red Color	Mtr	158.0
24.63	SITC of PA system Operator Console of following wattage to be installed with Conventional fire alarm system complete with following capacity , channel mixing amplifier , 1 no cardioids goose neck microphone , 1 no professional grade cassette deck/ CD Player , 16 zone floor selector console , equipment rack complete in all respects. PA system shall be coupled to the Fire Alarm System. Etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.63.1	1 x 120 Watt	Each	48607.0
24.63.2	1x 240 Watt	Each	62782.0
24.63.3	1x 350 Watt	Each	70203.0
24.64	SITC 6 watt Speaker mounted in M S sheet box with perforated front mesh for PA and Emergency System. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	943.0
24.65	Supply & Fixing of Water + AFFF 6% Mechanical Foam type Fire Extinguisher <b>(Stored Pressure type)</b> conforming to <b>IS:15683:2018</b> , Powder coated Internal & External Surface Deep drawn cylinder body of Mild Steel CR2 grade conforming to IS: 513, Squeeze grip Forged brass release valve with Inbuilt safety release device, Diaphragm Type, 0 to 25 bar range pressure gauge, 450 mm long EPDM discharge tube, QR code for Product Traceability including Fixing on wall with suitable Anchor Fasteners as required of following capacity. Test Certificates of all the Parameters along with Hydro test & Burst test (For Cylinder Body) Certificate from OEM / External NABL Accrediated Lab is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.65.1	Capacity - 6 Ltrs.	Each	3577.0
24.65.2	Capacity - 9 Ltrs.	Each	4522.0
24.66	Supply & Fixing of CO2 type Fire Extinguisher conforming to IS:15683:2018, charged with CO2 gas (purity 99.7% conforming to IS 15222), Powder coated Internal & External Surface Manganese steel ISI marked as per IS 7285 cylinder body , Wheel type Forged brass release valve ISI Marked as per IS 3224 with Inbuilt safety release device ((Fusible plug and Rupture Disc Type), 1.0 Mtr. Metal wire braided hose having minimum bursting pressure of 140 Kg/cm <sup>2</sup> , Horn with metallic thread connection, QR code for Product Traceability, including Fixing on wall with suitable Anchor Fasteners as required of following capacity. Test Certificates of all the Parameters along with Hydro test & Burst test (For Cylinder Body) Certificate from OEM / External NABL Accrediated Lab is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.66.1	Capacity 3.0 Kg.	Each	7332.0

Code No.	Description	Unit	Complete Rate
24.66.2	Capacity 4.5 Kg.	Each	8547.0
24.67	Supply & Fixing of Dry Powder Agent (as per IS 4308:2019), ABC type Fire Extinguisher <b>(Stored Pressure type)</b> conforming to <b>IS:15683:2018</b> , Powder coated Internal & External Surface Deep drawn cylinder body of Mild Steel CR2 grade conforming to IS: 513, Squeeze grip Forged brass release valve with Inbuilt safety release device, Diaphragm Type, 0 to 28 bar range pressure gauge, 450 mm long EPDM discharge tube, QR code for Product Traceability including Fixing on wall with suitable Anchor Fasteners as required of following capacity. Test Certificates of all the Parameters along with Hydro test & Burst test (For Cylinder Body) Certificate from OEM / External NABL Accrediated Lab is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.67.1	2 kg	Each	2767.0
24.67.2	4 kg	Each	4104.0
24.67.3	6 kg	Each	4576.0
24.67.4	9 kg	Each	5954.0
24.68	Supply & Fixing of Trolley mounted 22.5 Kg CO2 type Fire Extinguisher conforming to IS: 16018:2012, charged with CO2 gas (purity 99.7% conforming to IS 15222), Powder coated Internal & External Surface Manganese steel ISI marked as per IS 7285 cylinder body , Wheel type Forged brass release valve ISI Marked as per IS 3224 with Inbuilt safety release device ((Fusible plug and Rupture Disc Type), 1.5 Mtr. long Metal wire braided hose having minimum bursting pressure of 140 Kgf/cm2, Horn with metallic thread connection, QR code for Product Traceability, including Double mounted handle as required of following capacity. Test Certificates of all the Parameters along with Hydro test & Burst test (For Cylinder Body) Certificate from OEM / External NABL Accrediated Lab is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Each	26442.0
24.69	Supply & Fixing of Ceiling mounted Dry Powder Agent (as per IS 4308:2019), Modular stored pressure type ABC Fire Extinguisher , Powder coated Internal & External Surface Deep drawn cylinder body of Mild Steel CR2 grade conforming to IS: 513, Fixed Bulb with Temperature 68 deg C, QR code for Product Traceability including Fixing on Ceiling with suitable Anchor Fasteners as required of following capacity. Test Certificates of all the Parameters along with Hydro test & Burst test (For Cylinder Body) Certificate from OEM / External NABL Accrediated Lab is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.69.1	5 Kg Capacity	Each	6179.0
24.69.2	10 Kg Capacity	Each	9349.0

Code No.	Description	Unit	Complete Rate
24.70	Supply & Fixing of Ceiling mounted UL listed clean Agent (HFC-236fa), Modular type Fire Extinguisher , Powder coated Internal & External Surface Deep drawn cylinder body of Mild Steel CR2 grade conforming to IS: 513, Fixed Bulb with Temperature 68 deg C, QR code for Product Traceability including Fixing on Ceiling with suitable Anchor Fasteners as required of following capacity. Test Certificates of all the Parameters along with Hydro test & Burst test (For Cylinder Body) Certificate from OEM / External NABL Accredited Lab is to be submitted. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.70.1	5 Kg Capacity	Each	24304.0
24.70.2	10 Kg Capacity	Each	44626.0
24.71	Supplying and Fixing of Galvanized Mild Steel fire bucket Confirming to IS: 2546 : 1974 with one coat of primer and two coat of enamel paint of approved shade on Angle Iron ( 50 x 50 x 5 mm) Stand of Size 800 x 1240 x 400 mm with MS 22 SWG Galvanized Canopy, 4 Hooks for Buckets including associated civil works etc. as required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .	Set	11466.0
24.72	Providing and fixing signages as per required content printed on photoluminescent U1000 aluminium sheet of 1.0 mm (+-10%) containing Lumigen II as base chemical, covered under UV stablized coating with suitable colour combination (Glow in dark) with high intensity properties for indoor surface glow visibility not less than 6 hrs. in total darkness and of appropriate size including fixing on wall, door, ceiling etc. with proper clamps, hangers, cleats, anchor fasteners etc. complete in all respects required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.72.1	Single sided signage board	Sq.Inch	9.00
24.72.2	Double sided signage board	Sq.Inch	14.00
24.73	Providing and fixing of Aluminium housing body self contained Rechargeable LED Emergency Light with required content and Size Approx. 300 mm x 180 mm, confirming to IS:9583 :1981with Ni-Mh / Ni - Cd Battery, 3 Hrs Back Up, Constant Current Charger, Input Voltage 230 V , 50 Hz including fixing on wall, door, ceiling etc. with proper clamps, hangers, cleats, anchor fasteners etc. complete in all respects required. All as per pre approved by Engineer in charge. For additional technical parameters of products/ work , refer Annexure "A" attached with this BSR .		
24.73.1	Single sided signage	Each	4386
24.73.2	Double sided signage	Each	5128

## Chapter E - 25

### Hire Charges for PA System & Temporary Lighting

Code No.	Description	Unit	Complete Rate
25.1	Hire charges for LED Flood light luminaire ( white or warm white as required )for 90- 150 watt with the standard housing ,pole & mounting accessories with wiring, connection with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>		
25.1.1	With suitable pole	Each/Day	254.0
25.1.2	With out pole	Each/Day	170.0
25.2	Hire charges for LED Flood light luminaire ( white or warm white as required )for 200- 250 watt with the standard housing ,pole & mounting accessories with wiring, connection with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>		
25.2.1	With suitable pole	Each/Day	339.0
25.2.2	With out pole	Each/Day	254.0
25.3	Hire charges for weather proof round LED Rope/neon flex LED / Flexible strip type LED having 2 to 5 watts/meter capacity and consisting suitable power adapter with mains , switchgear etc complete with connection with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Mtr/day	8.0
25.4	Hire charges for IP 66 protected programmable RGB LED flood light with alluminium alloy housing and having 180 degree bracket adjustment complete with driver switchgear , wiring, connection , testing etc. with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>		
25.4.1	100 watt	Each/Day	509.0
25.4.2	150 watt	Each/Day	576.0
25.4.3	180 watt	Each/Day	848.0
25.4.4	300 watt	Each/Day	1187.0
25.5	Hire Charges for LED Screen Day light type of suitable size for Display complete with mounting arrangement/scaffolding, masking of mounting stand, signal booster, network switch /splitter, data and power cables and sound system arrangement etc. with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	sq.ft/ day	264.0
25.6	Hire Charges for HD Video camera suitable for HDMI output, recording in DVD/hard disk fuction complete with two operator as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	5528.0

Code No.	Description	Unit	Complete Rate
25.7	Hire charges for video Projection Arrangement (excluding screens) with 3 Nos. Video Camera (PWM 120 sony NX 527/Equivalent) including mixer (Pansonix MX70/Data Video MX500/ Equivalent) Complete with required HDMI/VGA etc. wiring VTR, switchers, with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	35382.0
25.8	Hire charges of Crane with operators for video camera for 360° movement complete arrangement with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Job / day	10615.0
25.9	Providing experienced and Highly skilled/skilled/ semi-skilled/Un Skilled labour for electric repair/ maintenance / operation of Air conditioning/Air cooling/Fire fighting/Lift/DG set/CCTV/EPABX or any other electromechanical systems as per requirement (one shift of 8 Hrs per day for 26 Working Days in a month)		
25.9.1	Highly skilled Labour	Each Per Month	11334.0
25.9.2	skilled Labour	Each Per Month	9596.0
25.9.3	Semi skilled labour	Each Per Month	9179.0
25.9.4	Un skilled labour	Each Per Month	8761.0
25.10	Add for extra working on Holidays.		
25.10.1	Highly skilled Labour	Each Per Day	436.0
25.10.2	skilled Labour	Each Per Day	369.0
25.10.3	Semi skilled labour	Each Per Day	353.0
25.10.4	Un skilled labour	Each Per Day	337.0
25.11	NOTE: Over time rates shall be two times of that category.		
25.12	NOTE: Part time rates up to 4 Hours shall be charged @ 50% of that category .		
25.13	NOTE: Part time rates for more than 4 Hours but less than 8 Hours shall be charged @ 100% of that category .		
25.14	Charges for Providing of experienced and Highly skilled/ skilled/semi-skilled/ Un skilled labour for electric repair/ maintenance/operation of Air conditioning /Air cooling / Fire fighting /Lift/D G set /CCTV/EPABX or any other electromechanical services/ systems as required.( One shift of 8 Hours per day )		
25.14.1	Highly Skilled Labour	shift / day	436.0
25.14.2	Skilled Labour	shift / day	369.0
25.14.3	Semi skilled labour	shift / day	353.0
25.14.4	Un skilled labour	shift / day	337.0
25.15	Hire charges for 42" HD LED/Plazma TV complete with mounting arrangement , connections, testing etc. with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Job / day	3538.0
25.16	Hire charges for 50/55" HD LED/Plazma TV complete with mounting arrangement , connections, testing etc.with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Job / day	4193.0



Code No.	Description	Unit	Complete Rate
25.17	Hire charges for Equipments Required for Public Address & Sound System for a very important public function/ VVIP visits including transportation,T&P,Scaffolding, testing and connections with trial etc. with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates )</b>		
25.17.1	VERTEK / RCF TT+ (55/56) 3 way Speakers 3500 to 8000 watt JBL or Equivalent make	Each/Day	3156.0
25.17.2	VERTEK / RCF TT+ (55/56) 3 way Speakers above 8000 watt JBL or Equivalent make.	Each/Day	4497.0
25.17.3	VERTEK / RCF TT+ (55/56) sub Woofers sound output 4000 to 8000 watt JBL or Equivalent make.	Each/Day	3156.0
25.17.4	VERTEK / RCF TT+ (55/56) sub Woofers sound output above 8000 watt JBL or Equivalent make.	Each/Day	4497.0
25.17.5	Core i5/i7 Laptop with HDMI cable & Stereo sound output make- HP/Dell/Lenovo or Equivalent.	Each/Day	631.0
25.17.6	Digital CD consoles with built in CD players & DJ mixer make : pioneer or equivalent.	Each/Day	3156.0
25.17.7	D.I. Boxes of Make DBX or equivalent .	Each/Day	1262.0
25.17.8	32 Channels Equilizers make-DBX or Equivalent.	Each/Day	5049.0
25.17.9	Cross Overs for the speakers Distributions make- DBX or equivalent.	Each/Day	3156.0
25.17.10	5000 watts Amplifiers for up to the 06 nos Vertek 3 way speakers make - crown or equivalent	Each/Day	3156.0
25.17.11	6000 watts Amplifiers for up to the 04 nos Vertek sub woofers make-Crown or Equivalent.	Each/Day	3156.0
25.17.12	Suspension kits with suitable stand for the High wattage speakers	Each/Day	1262.0
25.17.13	Required necessary audio connection cables, speakers cables,electrical wiring, boards, connector etc for speakers/horns etc. as required	Job/Day	3156.0
25.17.14	Flying Speakers 1200 watts RMS JBL/Yamaha/RCF/ Eq	Each/Day	2525.0
25.17.15	Top Speakers 1200 watts RMS JBL/Yamaha/RCF/Eq	Each/Day	2525.0
25.17.16	Monitor Speakers JBL/Yamaha/RCF/ Eq (For Stage)	Each/Day	1893.0
25.17.17	Cordless Mike Make:-Shure/AKG or equivalent .	Each/Day	379.0
25.17.18	CD Player Make:-Pioneer /Philips or Equivalent.	Each/Day	631.0

Code No.	Description	Unit	Complete Rate
25.17.19	Digital Mixer 32 Channel, 12 output Make:-Yamaha/Sound Craft or equivalent.	Each/Day	3156.0
25.17.20	Analog Mixer 24 Channel, 7 output Make:- Yamaha/Sound Craft or equivalent.	Each/Day	2525.0
25.17.21	Effect Processors. Make:-LSS/Behringer or equivalent.	Each/Day	631.0
25.17.22	Compressors. Make:-LSS/Behringer or equivalent.	Each/Day	631.0
25.17.23	Amplifiers 700 Watt RMS at 100 Ohm. Make:-Ahuja/QSC or equivalent.	Each/Day	631.0
25.17.24	Podium Microphones. Make:-Shure/AKG or equivalent.	Each/Day	631.0
25.17.25	Mikes with Big stand. Make:-Shure/AKG or equivalent.	Each/Day	631.0
25.17.26	Head Phone. Make:-Shure/AKG or equivalent.	Each/Day	947.0
25.17.27	Digital Audio recorder. Make:-Cinex or equivalent.	Each/Day	2525.0
25.17.28	31 Band Equalizer. Make:-LSS/Behringer or equivalent.	Each/Day	2525.0
25.17.29	Snake Cable 2 x 100 mtr as required.	Job/Day	505.0
25.17.30	Crossover Make:-LSS/Behringer or equivalent.	Job/Day	1262.0
25.18	Hire charges for 500/1000 Watt halogen flood luminaire(with lamp) with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>		
25.18.1	With suitable pole	Each/Day	42.0
25.18.2	With out pole	Each/Day	25.0
25.19	Hire charges for LED post top lantern upto 25-45 watt on suitable pole with skilled operator to operate system as and when etc as required. as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	93.0
25.2	Hire charges for light point complete with lamp,holder,wiring in casing or in PVC conduit , controlling switch and circuit protection MCB's with skilled operator to operate system as and when etc as required. for shops/ stalls etc. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	68.0

Code No.	Description	Unit	Complete Rate
25.21	Hire charges for power/light plug on board incl. wiring in PVC casing or in PVC conduit , controlling switch and circuit protection MCB's with skilled operator to operate system as and when etc as required. for shops/ stalls etc. <b>(If work continue for more then one day , rates for next subsequent davs will be 50% of the original rates.)</b>	Each/Day	102.0
25.22	Hire charges for Jhalar bulb15/25 watt coloured/clear with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	4.0
25.23	Hire charges for miniature bulb with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>		
25.23.1	for 60 nos. 6.2 v miniature bulb	Each/Day	12.0
25.23.2	for 50 nos. 0.25 v LED miniature bulb	Each/Day	14.0
25.24	Hire charges of niwar patti with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>		
25.24.1	niwar patti 60 no. 6.2 v miniature lamps.	Each/Day	15.0
25.24.2	niwar patti 50 no. 0.25 v LED miniature lamps.	Each/Day	20.0
25.25	Hire charges for LED tube light fixture with 18/20 watt with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	34.0
25.26	Hire charges for Light fixture with CFL 9 / 11/ 13 / 15 watt with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	17.0
25.27	Hire charges for LED bulb 6 watt to 13 watt of white/ warm white colour etc. mounted on wooden batten/niwar patti or in holder (with required CCT )as per choice of client or engineer in charge complete with wiring etc with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	10.0
25.28	Hire charges for 250/400 watt metal halide luminaire with lamp and pole of required height with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent davs will be 50% of the original rates.)</b>	Each/Day	127.0
25.29	Hire charges for 500/1000 watt appollo light for shops/ stalls with skilled operator to operate system as and when etc as required. (with lamp) <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each/Day	68.0
25.30	Hire charges for Silent type D.G. Set, including change over switch. Control panel etc. and excluding POL with skilled operator to operate system as and when etc as required. of following capacity:		
25.30.1	15 to 25 KVA	Each/Day	3052.0
25.30.2	40 KVA	Each/Day	3899.0
25.30.3	62.5 KVA	Each/Day	5086.0
25.30.4	82.5 KVA	Each/Day	6103.0
25.30.5	125 KVA	Each/Day	8477.0
25.30.6	180 KVA	Each/Day	11020.0
25.30.7	250 KVA	Each/Day	15259.0

Code No.	Description	Unit	Complete Rate
25.30.8	500 KVA	Each/Day	21193.0
25.31	Hire charges of Main service line for 3 phase connection upto 50 mtr. Length (without any joint) including meter board, panel/distribution Board and supports with skilled operator to operate system as and when etc as required. <b>(If work continue for more than one week , rates for next subsequent weeks will be 50% of the original rates.)</b>		
25.31.1	Upto 25.0 sq.mm size PVC insulated and Sheathed cable(Armoured or Un-armoured as required.)	Each / week	254.0
25.31.2	above 25.0 sq.mm & upto 95 Sq.mm PVC insulated and Sheathed cable(Armoured or Un-armoured as required.)	Each / week	381.0
25.31.3	above 95.0 sq.mm PVC insulated and Sheathed cable(Armoured or Un-armoured as required.)	Each / week	678.0
25.32	Hire charges of Sub service line for single/ three phase connection upto 30 mtr. Length including dist. Board and supports with skilled operator to operate system as and when etc as required. <b>(If work continue for more than one week , rates for next subsequent weeks will be 50% of the original rates.)</b>		
25.32.1	Single phase upto 6 Sqmm PVC insulated and Sheathed cable	Each / week	68.0
25.32.2	Three phase & neutral upto 10 Sqmm PVC insulated and Sheathed cable	Each / week	136.0
25.33	Hire charges for Desert cooler of size 20" fan with stand, wiring including filling of water complete with skilled operator to operate system as and when etc as required.	Each / week	212.0
25.34	Hire charges for pedestal fan of size 18" / ceiling fan of size 48"/56" sweep including connections etc.with skilled operator to operate system as and when etc as required. <b>(If work continue for more than one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	85.0
25.35	Supply and filling of POL for DG sets	KVA / Hour	17.0
25.36	Hire charges for LPG Heater including commercial gas cylinder,regulator and operator with skilled operator to operate system as and when etc as required. <b>(If work continue for more than one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	2034.0
25.37	Hire charges for Mist Fan complete with required connections and operator with skilled operator to operate system as and when etc as required. <b>(If work continue for more than one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	848.0
25.38	Hire charges for Jumbo polycarbonate/fiber body moveable desert cooler complete with water filling and operator with skilled operator to operate system as and when etc as required. <b>(If work continue for more than one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	1187.0
25.39	Hire charges for following type of Airconditioners including copper piping , drain piping and electrical connections with skilled operator to operate system as and when etc as required. <b>(If work continue for more than one day , rates for next subsequent days will be 50% of the original rates.)</b>		
25.39.1	1.5 TR Split AC	Each / day	3258.0
25.39.2	2.0 TR Split AC	Each / day	3450.0
25.39.3	3.0 /4.0 TR Tower type split AC	Each / day	6708.0
25.39.4	5.0/5.5 TR ductable type Split AC	Each / day	9583.0

Code No.	Description	Unit	Complete Rate
25.40	Hire charges of public address system for a important public function with 5/6 no. of microphones with following nos of stand Hi Fi box, speakers/ Horns, stand by amplifiers , battery backup complete including transportation etc. with skilled operator to operate system as and when etc as required. : ( At district Head Quarters ) <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>		
25.40.1	4 Nos 3 Way Big Box Speakers,(upto 5000 audiences)	Each / day	5256.0
25.40.2	6 Nos 3 Way Big Box Speakers,(above 5000 to 10000 audiences)	Each / day	10172.0
25.40.3	8 Nos 3 Way Big Box Speakers,(above 10000 to 25000 audiences)	Each / day	14411.0
25.40.4	10 Nos 3 Way Big Box Speakers,(above 25000 audiences)	Each / day	18649.0
25.40.5	With 5/6 Mikes, 15 to 20 nos. reflex horns (upto 25000 audiences)	Each / day	6782.0
25.40.6	With 5/6 Mikes, 25-30 nos. reflex horns (above 25000 audiences)	Each / day	9325.0
25.40.7	Hire charges for table microphone ( Delegate type ) <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	339.0
25.40.8	Hire charges for clip microphone with long lead lavilier. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	407.0
25.40.9	Hire charges for collar cordless/ Handheld microphone with long lead lavilier. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	509.0
25.41	Hire charges for public address system consisting of 2 Microphone with stand, Battery Backup, Amplifier,2 Loudspeakers with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	2204.0
25.42	Hire charges for 2 nos. 3 way Bigbox speakers with 5/6 Microphones, mixer, echo chamber, Amplifier, Battery back up with skilled operator to operate system as and when etc as required. for Musical programme. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Job / day	8477.0
25.43	Hire charges for extra battery of 12 V , 125 AH with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	254.0
25.44	Hire charges for cut glass chendilier of 20 lamps with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	678.0
25.45	Hire charges for cut glass chendilier of 15 lamps with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	509.0
25.46	Hire charges for cut glass chendilier of 7 lamps with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	237.0

Code No.	Description	Unit	Complete Rate
25.47	Hire charges for spot /palican lights (1000 watt) for stage function with dimmer as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	339.0
25.48	Hire charges for colour effect scanners for stage functions with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	1865.0
25.49	Hire charges for jumbo strove light for stage functions with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	1187.0
25.5	Hire charges for Back or Front Projection Screen with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each / day	509.0
25.51	Hire charges for High Lumens LCD Projectors with operator ( 3500 Lumens ) and projector screen of size 8' X 6' with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each p. day	2543.0
25.52	Hire charges for Medium Lumens LCD Projectors with operator ( 2500 Lumens ) and projector screen of size 8' X 6' with skilled operator to operate system as and when etc as required. <b>(If work continue for more then one day , rates for next subsequent days will be 50% of the original rates.)</b>	Each p. day	2034.0
25.53	Hire charges for Cable fault locator machine with manpower for detecting fault in underground cable of LT 1.1 KV grade or 11/33KV HT cable	Each per Fault	10172.00

## Chapter E -26

### Repairing of Fans, Coolers, Pumps, Motors, Fridges & Airconditioners

Code No.	Description	Unit	Complete Rate
26.1	Rewinding of ceiling fan motor (starting and running winding) including all necessary material. The motor is to be wound taking no. of coils, turns and pitch as it was originally wound with required size super enamelled wire with 'E' class insulation material and making connections etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor. (New model ceiling fan)		
26.1.1	900/1200 mm sweep (New model ceiling fan)	Each	525.0
26.1.2	1400 mm sweep (New model ceiling fan)	Each	620.0
26.1.3	All sizes (Old model ceiling fan)	Each	1666.0
26.2	Labour charges for removing and refixing of Ceiling fan/ Exhaust fan from site	Each	67.0
26.3	Charges for oiling, overhauling of ceiling fan, table fan, pedestal fan irrespect to the size of fan including removing,refixing of fan from site and testing etc. as required.		
26.3.1	Fans w/o Removing & Refixing	Each	40.0
26.3.2	Fans with Removing & Refixing at Suitable Location	Each	107.0
26.4	Providing and Replacement of ball bearing of ceiling/ exhaust fan and refixing the same at suitable location as required and as per OEM recommendations. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	261.0
26.5	Providing & Replacement of M.S. Shaft of ceiling fan. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	154.0
26.6	P & Replacement of cover/ bearing seat of ceiling/ exhaust fan. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	140.0
26.7	P & F Aluminium Blades (a set of 3 blades) duly painted and well finished 900/ 1200 mm. The material of the fan blade shall be of designation 31500B with condition HX6 aluminium alloy sheet confirming to IS 737/2008	Each	247.0
26.8	P & F Aluminium Blades (a set of 3 blades) duly painted/ powder coated. ( 1400/ 1500 mm) The material of the fan blade shall be of designation 31500B with condition HX6 aluminium alloy sheet confirming to IS 737/2008	Each	314.0
26.9	P & F of rubber gromet (fan insulator)	Each	36.0
26.10	Providing and Replacement of Gun metal bush of ceiling/exhaust/cooler fan/ as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	154.0
26.11	P & F 3 Speed rotary switch for Desert Cooler complete with testing etc as required.	Each	83.0
26.12	P & Replacement of M.S. Shaft of fan motor for Desert Cooler/ exhaust fan. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	160.0
26.13	P & replacement of supporting legs(4 no.) of vertical pump of desert cooler as required for Desert Cooler/ exhaust fan. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	114.0

Code No.	Description	Unit	Complete Rate
26.14	P & F of stud with nuts and washer for Desert Cooler/ exhaust fan.All the scrap material should be retained by the contractor.	Each	49.0
26.15	Servicing and overhauling of 20" sweep desert cooler including oiling, greasing, painting of tank from inside with rubber paint after properly desmantling each assembly and refixing the same as required.	Each	247.0
26.16	Painting of desert cooler with two coats of rubber paint inside of water tank and two coat of synthetic enamelled paint on both side of cooler body, fan body, grills etc.after cleaning with sand paper, complete in all respect as required.	Each	428.0
26.17	Replacement of cooler pads (heavy) set of 3 no. of size 25" x 27"	Each	100.0
26.18	P & F Brass float valve of weighing approx. 250 gm, 8" long rod,PVC ball of 4" dia. For desert coler as required.	Each	227.0
26.19	P & F adjustable M.S.grill 20/22 gauge of size approx. 24" x 26" including painting etc. as required.	Each	314.0
26.20	P & F aluminun blade for 20" desert cooler fan as required.	Each	221.0
26.21	P & F outer/inner threaded PVC nipple 1/2" dia and 2" long	Each	13.0
26.22	P & Replacement of pvc pipe of 1/2" size for vertical pump of desert cooler as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	31.0
26.23	P & replacement of shaft for vertical pump of desert cooler as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	EACH	67.0
26.24	Spray painting of ceiling fan of size 900/1200/ 1400/ 1500 mm with two coats of white/ brown enamelled paint after cleaning with sand paper. Filling etc. as required.	Each	154.0
26.25	P & replacement of 4 nos. supporting legs of 20" fan motor with rubber pads of desert cooler as required.Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	147.0
26.26	P & replacement of high quality pvc distribution ' T 'and 3 no. elbow for cooler	Each	23.0
26.27	P & F ISI marked commercial plywood 4.0 mm thick including cutting, hardwares etc. as required.	SQ.Mtr.	281.0
26.28	Labour Charges for fixing of desert cooler in windows including handling of cooler upto desired location, making electrical/water connections, testing etc. as required.		
26.28.1	Ground floor	Each	74.0
26.28.2	First floor	Each	120.0
26.28.3	Second floor	Each	154.0
26.29	P & F of ISI marked vertical pump suitable for 20" desert cooler including making connection testing etc. as required.		
26.29.1	ISI marked vertical pump	Each	542.0
26.3	P & F of submercible pump set suitable for 18/24 "Desert coolers.	Each	308.0
26.31	P & F of submercible pump set suitable for 36 "Desert coolers.	Each	675.0
26.32	P & F fan motor suitable for 20" desert cooler including making connection testing etc. as required.		
26.32.1	with copper winding Motor ISI Marked	Each	3510.0
26.32.2	with Aluminium winding Motor ISI Marked	Each	2025.0



Code No.	Description	Unit	Complete Rate
26.33	Rewinding of Heavy duty Exhaust fan motor including all necessary material, The motor is to be wound taking no. of coils, turns and pitch as it was originally wound with required size super enamelled wire with 'E' class insulation material and making connections etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.		
26.33.1	300/ 380 mm sweep	Each	783.0
26.33.2	450 mm sweep	Each	1016.0
26.33.3	600 mm sweep	Each	1429.0
26.34	Rewinding of 400 mm table fan/pedestal fan motor including all necessary material, The motor is to be wound taking no. of coils, turns and pitch as it was originally wound with required size super enamelled wire with 'E' class insulation material and making connections etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	425.0
26.35	Rewinding of single phase motor of 1400 RPM including all necessary material and of the same characteristics as original with required size of super enamelled wire 'E' class insulation material and testing etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.		
26.35.1	0.25 H.P. To 0.50 H.P.	Each	915.0
26.35.2	0.75 H.P. To 1.0 H.P.	Each	1256.0
26.35.3	2.0 H.P.	Each	2073.0
26.36	Rewinding of three phase squirrel cage induction motor of 1400 to 2800 RPM including all necessary material and of the same characteristics as original with required size of super enamelled wire 'E' class insulation material and testing etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.		
26.36.1	3.0 H.P.	Each	3400.0
26.36.2	5.0 H.P.	Each	4220.0
26.36.3	7.5 H.P.	Each	4941.0
26.36.4	10.0 H.P.	Each	6292.0
26.36.5	12.5 H.P.	Each	7622.0
26.36.6	15.0 H.P.	Each	9648.0
26.37	Rewinding of motor of desert cooler pump with super enamelled copper wire, 'E' class insulation material including removing, refixing, testing etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	250.0
26.38	Rewinding of motor of desert cooler fan with super enamelled copper wire, 'E' class insulation material including removing, refixing, testing etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	891.0
26.39	Providing and replacement of heating element of blower type heat convector as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	120.0
26.40	Providing and replacement of heating element rod of radiation type heat convector as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	114.0
26.41	Providing and replacement of Superior quality Chrome plated reflector of radiation type heat convector as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.		
26.41.1	single rod	Each	134.0
26.41.2	double rod	Each	160.0

Code No.	Description	Unit	Complete Rate
26.42	Supplying and charging of fresh refrigerant and testing of performance of air conditioner/ fridge/ water cooler of following capacity including capillary and strainer/ filter.		
26.42.1	1.0 TR Window/ Split A.C.	Each	1738.0
26.42.2	1.5 TR Window/ Split A.C.	Each	2407.0
26.42.3	2.0 TR Window/ Split A.C.	Each	3076.0
26.42.4	25/50 / 40/80 Ltr. Water cooler	Each	1872.0
26.42.5	60/120 Ltr. Water cooler	Each	2140.0
26.42.6	150/150 Ltr. Water cooler	Each	2541.0
26.42.7	165 Ltr Refrigerator	Each	1404.0
26.42.8	200/210 Ltr Refrigerator	Each	1939.0
26.42.9	280/310 Ltr Refrigerator	Each	2340.0
26.43	Replacement of defective compressor by company repaired compressor as per OEM recommendations of following gadgets including testing etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.		
26.43.1	1.0 TR A.C.	Each	10698.0
26.43.2	1.5 TR A.C.	Each	12035.0
26.43.3	2.0 TR A.C.	Each	12703.0
26.43.4	25/50 / 40/80 Ltr. Water cooler	Each	5951.0
26.43.5	60/120 Ltr. Water cooler	Each	7956.0
26.43.6	150/150 Ltr. Water cooler	Each	8625.0
26.43.7	165 Ltr Refrigerator	Each	3544.0
26.43.8	200/210 Ltr Refrigerator	Each	4279.0
26.43.9	280/310 Ltr Refrigerator	Each	4613.0
26.44	P & Replacement of condensing/ cooling coil of copper fins for following capacity A.C./ Water cooler/ Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.		
26.44.1	1.0 TR A.C.	Each	3209.0
26.44.2	1.5 TR A.C.	Each	3610.0
26.44.3	2.0 TR A.C.	Each	4012.0
26.44.4	25/50 / 40/80 Ltr. Water cooler	Each	2407.0
26.44.5	60/120 Ltr. Water cooler	Each	2942.0
26.44.6	150/150 Ltr. Water cooler	Each	3209.0
26.44.7	165 Ltr Refrigerator	Each	1471.0
26.44.8	200/210 Ltr Refrigerator	Each	1738.0
26.44.9	286/310 Ltr Refrigerator	Each	2006.0
26.45	Servicing of 1.0/1.5/2.0 TR capacity Split/ Window type air conditioner	Each	669.0
26.46	P & Replacement of overload protection of A.C./ Water cooler as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	468.0
26.47	P & Replacement of thermostat of A.C./ Water cooler/fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	401.0
26.48	P & Replacement of selector switch of 1.0/1.5/2.0 TR A.C Fan as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	120.0
26.49	P & Replacement of starting relay of A.C/water cooler/fridge compressor as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	468.0

Code No.	Description	Unit	Complete Rate
26.50	P & Replacement of door liner of 165/200 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	1203.0
26.51	P & Replacement of door liner of 286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	1471.0
26.52	P & Replacement of main liner of 165/200 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	2006.0
26.53	P & Replacement of main liner of 286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	2273.0
26.54	P & Replacement of door gasket of 165/200 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	234.0
26.55	P & Replacement of door gasket of 286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	374.0
26.56	P & Replacement of PVC/ acrylic vegetable basket of 165/200 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	374.0
26.57	P & Replacement of PVC/acrylic vegetable basket of 280/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	374.0
26.58	P & Replacement of glass/acrylic cover for vegetable basket of 165/200 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	274.0
26.59	P & Replacement of glass/acrylic cover for vegetable basket of 286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	308.0
26.60	P & Replacement of PVC /acrylic bottle supporter of 165/200/ 286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	140.0
26.61	P & Replacement of aluminium bottle supporter of 165/200/ 286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	160.0
26.62	P & Replacement of PVC./acrylic freezer door of 165/200 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	334.0
26.63	P & Replacement of PVC./acrylic freezer door of 286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	401.0
26.64	P & Replacement of door handle of 165/200/286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	301.0
26.65	P & Replacement of lamp of Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	33.0

Code No.	Description	Unit	Complete Rate
26.66	P & Replacement of PVC/acrylic chiller tray of 165/200 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	294.0
26.67	P & Replacement of PVC/acrylic chiller tray of 286/310 Ltr. Fridge as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	328.0
26.68	P & Replacement of fridge lock complete as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	207.0
26.69	Spray painting of complete fridge (inside and outside ) of 165/ 200 Ltr. Capacity.	Each	1404.0
26.70	Spray painting of complete fridge (inside and outside ) of 286/310 Ltr. Capacity.	Each	1538.0
26.71	P & Replacement of fan motor of evaporator/ condensor complete as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	2073.0
26.72	S & F of capacitor of 230V/ 275V, 50Hz rating of plastic casing and terminals -Lugs or copper wire.		
26.72.1	Starting capacitor		
26.72.1.1	20-30 micro farad	Each	134.0
26.72.1.2	40-60 micro farad	Each	177.0
26.72.1.3	60-80 micro farad	Each	233.0
26.72.1.4	80-100 micro farad	Each	294.0
26.72.1.5	100-120 micro farad	Each	308.0
26.72.1.6	120-150 micro farad	Each	361.0
26.72.2	Running capacitor		
26.72.2.1	2.5/3.15 micro farad	Each	47.0
26.72.2.2	4.0 micro farad	Each	56.0
26.72.2.3	6.0 micro farad	Each	72.0
26.72.2.4	8.0 micro farad	Each	82.0
26.72.2.5	10.0 micro farad	Each	95.0
26.72.2.6	15.0 micro farad	Each	127.0
26.72.2.7	20.0 micro farad	Each	206.0
26.72.2.8	25.0 micro farad	Each	229.0
26.73	P & Replacement of plastic/metallic sheet condensor holder suitable for ceiling fan/ exhaust fan /motor etc complete as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.	Each	23.0
26.74	Rewinding of single phase/3phase submersible motor including all necessary material and of the same characteristics as original with required size of super enamelled wire 'E' class insulation material and testing etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.		
26.74.1	0.5 H.P. To 1.0 H.P.	Each	3610.0
26.74.2	2.0 H.P.to 3.0 HP	Each	6285.0
26.74.3	Above 3.0 HP to 5.0 HP	Each	8291.0
26.74.4	From7. 5 HP to 10.0 HP	Each	10296.0
26.75	Repairing of submersible pump of with replacement of broken impellers ,diffuser,bush/bearing set , oil seal complete with testing etc. as required. Replacement of material or components shall be use as per guidelines of OEM of original product. All the scrap material should be retained by the contractor.		
26.75.1	0.5 H.P. To 1.0 H.P.	Each	2541.0
26.75.2	2.0 H.P.to 3.0 HP	Each	3945.0
26.75.3	Above 3.0 HP to 5.0 HP	Each	5349.0

Code No.	Description	Unit	Complete Rate
26.75.4	From 7.5 HP to 10.0 HP	Each	6686.0

## Annexure-A

**Additional Technical parameters of products/ work**

1. PWD specifications for Electrical works -2012 (as amended upto date ), relevent IS codes, National Building Code / National Lighting Code / National electric Code / Indian Electricty Rules ( all as amended upto date ) shall be treated as part of this Electric BSR-2022 for the purpose of detailed specifications & clarifications, if any. Henceforth this BSR-2022 shall be considered as part of all contracts/ agrements, controversy / dispute in interpretation of BSR -2022, decision of Chief Engineer (Electrical ) PWD Rajasthan shall be final & binding.
2. Agency must ensure to take prior approval for makes and models in writing before / at the time of layout by Engineer-in-Charge as per specifications with submitting TDS of products & all items used from any particular chapter of this BSR for any individual project, should be of same brand which is approved before execution as per availability.
3. OEM installation mannual guideline practice for execution of work at site must be followed by agency's engineer & verified by department.
4. Agency must ensure to execute all hidden items in presence of engineer-in-charge or site engineer. GPS Photo be attach at the time of measurment.
5. Tests of specified items below must be done in Government approved **OEM's authorised Labs** / outsource from government approved any authorised Lab by agency & no extra payment shall be made for below mentioned tests & procedures at all :-↓

Sr.No.	Item Name	Tests must be done in Government approved <b>OEM's authorised Labs</b> / outsource from government approved any authorised Lab as mentioned below :-
		01 test if quantity in BOQ/execution is more then ↓
1	Wiring accessories ( switch / socket)	500 wiring points
2	Wiring accessories Regulator / dimmer	150 Nos.
3	PVC / Steel Conduit ( Total of all sizes)	500 wiring points
4	Sheet Steel Box/ M.S. Box/ GI Box/ PVC Box ( Total of all sizes)	300 Nos. ( Total of all sizes)
5	MCB/RCCB/Isolator ( 1 Pole to 4 Pole) ( Total of all amp rating)	150 Nos. ( Total of all amp rating)
6	Ceiling Fan/ Exhaust /fresh air/ wall mounting fan. (Total All sizes )	100 Nos. (Total All sizes )

6. Factory Inspection for testing of specified items below must be done in Government approved **OEM's authorised Labs** by departmental Engineer. Agency must ensure to make all necessary permission and arrangements for the visit & no extra payment shall be made for all this procedure :-↓

Sr.No.	Item Name	Factory inspection for testing in Government approved OEM's authorised Labs by department engineer as mentioned below :-
	↓	If quantity in BOQ/execution is more then ↓
1	Indoor LED Lighting fixture all types	200 Nos.
2	Outdoor LED Lighting fixture all types	50 Nos.
3	Lattice tower all sizes	5 Nos.
4	Air Conditioner	30 Nos.
5	Air cooling machine/ Chillers	5 Nos.
6	Street light pole	30 Nos.
7	Transformer	compelsary for Each quantity
8	High mast pole	compulsary for each if height is 16 Mtr. or more.
9	DG set	compelsary for Each quantity
10	RMU	compelsary for Each quantity
11	Bus Bar Trunking	compelsary for Each quantity

7. Any Items can be send for testing by Engineer-in-Charge in Government Authorised any approved Lab. Payment of testing charge shall be borne by department for that. Agency is liable to make all necessary arrangement to send the sample & get reports from lab without any extra cost.

8. Agency will submit minimum one year valid guarantee certificate of Product & Liability product genuineness purchase proof from OEM/ Authorised Dealer .

9. Appropriate/ Routen type Test Certificates/ reports related to IS code with liable standard warranty proof / certificate of product from OEM / authorised dealer shall be submitted by agency during / at the time of execution & duly verified by Engineer-in-Charge.

10. Agency must ensure to prepare the Satisfactory installation service report from OEM engineer for major items like DG set, Transformer, PSS, RMU, Fire fighting pumps, VRF/VRV, package AC units, ACB, High Mast ( 16 mtr. or heigher ) etc. and submit the same in Engineer In charge office. All record be kept with agreement file.

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