

Name of work: Ratlam Division – Dr. Ambedkar Nagar (DADN) - Electrical work in connection with provision of new integrated crew lobby, CTCC Office, counselling room, TRS staff Room with parking & boundary wall at DADN.

Schedule-C

Sr.	Description	Qty.	Unit	Rate	Total
1	Supply of material and carry out concealed wiring of Light/Fan Points without pipe up to 6 meters with FRLS PVC insulated, multi strand three Nos. copper wires of 1.5 sq. mm for phase, neutral and earth continuity conforming to IS-694 (as amended latest). The point wiring shall include supply & providing modular switches with complete associate accessories such as chromium plated metal boxes, modular plates, cover plate, lamp holders, three pin ceiling rose, adopter etc. as per technical specification	130	Nos.	484.70	63011.00
2	Supply and laying in wall & ceiling in concealed manner of ISI marked medium class rigid 25 mm. dia. PVC conduit pipe with all accessories as per technical specification	390	Mtr	47.69	18599.10
3	Supply, fixing, testing and commissioning of 6 Amps 5 pin modular socket with modular switch in concealed manner on an existing board where phase and neutral are already available as per technical specification	20	Nos.	147.99	2959.80
4	Supply, fixing, testing and commissioning of 6 Amps 5 pin modular socket with modular switch in concealed manner on an separate board with all modular accessories as per technical specification	25	Nos.	432.12	10803.00
5	Supply, fixing, testing and commissioning of 16 Amps multi pin socket with modular switch in concealed manner on separate board with all accessories as per technical specification	20	Nos.	482.03	9640.60

6	Supply of materials and wiring of main/sub main in concealed manner with 2.5 mm. sq. size multi strand FRLS PVC insulated ISI marked copper wire for phase, neutral & earth wire with PVC conduit pipe as per technical specification	450	Mts.	109.89	49450.50
7	Supply of materials and wiring of main/sub main in concealed manner with 4 mm. sq. size multi strand FRLS PVC insulated ISI marked copper wire for phase, neutral & earth wire with PVC conduit pipe as per technical specification	350	Mts.	155.17	54309.50
8	Supply of material & wiring of light point/ceiling rose point by 1.5mm ² copper PVC cable casing-capping pipe/PVC pipe with earth wire without switch.	25	Nos.	138.68	3467.00
9	Supply & fixing Double pole MCB On board including connection.	20	Nos.	299.30	5986.00
10	Supply and laying PVC Truncking system 50X50mm for sub main wiring	100	Mts	165.91	16591.00
11	Supply & Fixing of LED Tube Light fitting 18/20W including connection as per specification.	70	Nos.	734.69	51428.30
12	Supply & Fixing of LED Tube Light fitting 40W including connection as per specification.	20	Nos.	1899.14	37982.80
13	Supply and fixing of decorative LED Luminaire 36W (2'x2') complete as per specification.	10	Nos.	2716.12	27161.20
14	Supply & Fixing of LED Lamp.	10	Nos.	90.42	904.20
15	Supply & fixing of Brushless DC (BLDC) Motor Celling Fan, ISI marked, sweep size: 1200/1400 mm with electronic fan regulator as per specification.	25	Nos.	3162.50	79062.50
16	Supply & fixing testing & commissioning of wall bracket oscillating fan size 380 mm including connection.	10	Nos.	1354.37	13543.70

17	Supply & fixing of exhaust fan 300 mm sweep including connection.	4	Nos.	1448.17	5792.68
18	Supply & fixing of exhaust fan 250 mm sweep including connection.	2	Nos.	1450.23	2900.46
19	Supply of material, erection, testing & commissioning of GI pipe earthing arrangement.	2	Nos	2163.27	4326.54
20	Supply and fixing of Control panel 100Amp with MCCB& MCB's etc. as per specification.	2	Nos.	15407.72	30815.44
21	Supply & fixing of Distribution box 63Amp complete as per specification.	3	Nos.	11066.03	33198.09
22	Supply, erection testing & commissioning of SFU 125A TPN switch fuse unit with HRC fuse complete as per specification.	1	Nos.	13124.91	13124.91
23	Supply & fixing of Split Air Conditioner with Inverter technology 1.5TON. Including stand and all other accessories as per specification.	4	Nos.	43366.69	173466.76
24	Extra refrigeration pipe line& cables	16	Mts.	210.85	3373.60
25	Supply, erection, testing & commissioning of three core 2.5sqmm copper cable	30	Mtr	194.44	5833.20
26	Supply of Self drinking water cooler with (non-CFC refrigerant) energy efficient compressor, cooling capacity Liters/Hr.: 150, Type: Storage, Storage Capacity Liters.: 150, Rate of Max. Energy consumption watt: 1550 as per specification.	1	Nos.	47963.24	47963.24
27	Supply and fixing of perforated GI cable Tray 100x50mm as per specification.	80	Mts.	376.27	30101.60
28	Laying of 4core 70sqmm UGAC with heat resisting insulation PVC Insulated and strip type Sheathed Armoured Aluminium Conductor cable with 1x8SWG GI wire in existing trench/Pipe/ in air	500	Mts	20.38	10190.00
29	Laying of four Core 25sqmm UGAC with heat resisting insulation PVC Insulated and strip type Sheathed Armoured Aluminium Conductor cable with 1x8SWG GI wire in existing trench/Pipe/ in air.	500	Mts	20.38	10190.00

30	Digging of trench	200	Mts.	111.07	22214.00
31	Digging of Pacci trench	100	Mts.	282.22	28222.00
32	Supply of double walled corrugated HDPE Pipes of size 120mm Outer dia & 103mm inner dia	20	Nos	1420.62	28412.40
33	Supply and laying of 65 mm dia. DWC pipe complete	200	Mts.	57.17	11434.00
Rs. Nine Lakh Six Thousand Four Hundred Fifty-Nine and Twelve Paise only					906459.12

-: Term & General Condition: -

1. This is works contract and shall be governed by "General conditions of contract-Apr-2022"
2. The contractor shall take all safety aspects into consideration & will be responsible if accident occurred & the liability arising out will be on contractor's account.
3. Work will be carried out as per the electrical schedule attached.
4. LED Fittings Shall be confirming to WR Specification No. WR/CCG/ Specification/ P/001 (Rev-01) /2018 of Dt. 28-02-2018.
5. Sample of all material used needs to be submitted for approval from Sr. DEE/P/RTM or railway representative authorized by Sr. DEE/P/RTM.
6. The work shall be supervised by railway representative authorized by Sr. DEE/P/RTM.
7. The OEM test report / delivery challans of OEM/ Authorized dealer for materials used should be supplied to the site engineer of the work. A copy of the same should be submitted to the office by the site engineer.
8. Released materials should be handed over to Railway with joint receipt note, if any.
9. Any minor nature item of the work, whether specifically mentioned in the scope of work or not but necessary for the completion of the work as per site requirement and for proper functioning or commissioning of the equipment will be supplied by the contractor free of cost.
10. The decision of Rly. In case of any dispute regarding unsatisfactory working/services or termination of contract would be final.
11. The work can be executed anywhere in RTM Division with the approval of Sr. DEE/P/RTM, if required.
12. **The tenderer should submit valid electrical contractor's license issued by any Government & should submit copy of the same along with the offer failing to which offer will not consider as technically suitable. (Electrical License on the Name of agency / person who will supervise and execute the Electrical work).**
13. The contractor shall carry out the electrical work as per the latest IE Rules and CEAR-2023 (Central Electricity Authority Regulations-2023).
14. In case of any ambiguity in technical specification of the work, the matter shall be referred to Sr. DEE/P/RTM and his decision shall be binding on contractor.
15. The Contractor has to supply & provide ancillary material such as nut, bolt, clamps, brackets, etc. required for the work even if they are not mentioned in the Tender schedule.
16. The tenderer must fulfill all the legal and statutory requirements prescribed by central or state govt. from time to time applicable to the contract.
17. Rly will provide sites for erection as and when available according parallel to concern department work Progress.
18. One railway Electrical Technician / assistant will be deputed time to time for shut down, jumpering etc. Site In-charge will ensure proper shutdown procedure.
19. **Payment Condition:** - Payment shall be made on actual quantity executed as per Railways' tender terms and conditions only after erection, testing and commissioning of those items which are to be installed, erected and commissioned and fulfillment of conditions of Railways' Standard General Conditions of Contract and after successfully completion certification by site engineer.
20. All taxes, duties, GST and other Govt. levies etc. shall be liable to be deducted as per rules in force at the time of preparation of bill and contractor shall have no objection in this regard. The rates quoted by tenderer shall be inclusive of all taxes, duties, GST and other Govt. levies etc.

21. Contractor shall have to mandatory updating of Labour data on Railway's **Shramik Kalyan portal**.
22. The contractor shall ensure strictly to submit **Police verification** of each contractual labor/ staff provided during course of contract.
23. The Contractor shall be responsible to ensure, compliance with the provision of the **Minimum Wages**.
24. **Maintenance/Warranty/Guarantee Period: -**
25. Schedule C – Item no.11, 12 and 13 - The warranty/ guarantee/ maintenance period shall be sixty (60) months from the date of successful completion of work as certified by concerned SSE and Security Deposit shall be released accordingly.
26. Schedule C – Item no.15 - The warranty/ guarantee/ maintenance period shall be Twenty Four (24) months from the date of successful completion of work as certified by concerned SSE and Security Deposit shall be released accordingly.
27. Schedule C – All items shall be warrantied/ guaranteed / maintenance period shall be twelve (12) months from the date of successful completion of work as certified by concerned SSE and Security Deposit shall be released accordingly except Item no. 11, 12, 13 & 15.
28. In case of any item fails during warranty/ guarantee/ maintenance period, then contractor must attend the within 7 days from date of intimation by Railway, otherwise penalty will be imposed as decided by Sr. DEE/P/RTM and shall be deducted from Bills/ SD.

Technical specification of Schedule-C

Name of work: Ratlam Division - CNA-RTM-Section - Chittorgarh - Electrical work in connection with upgradation of integrated crew lobby.

<u>item No. 01, 02, 03, 04, 05, 06 & 07</u>	Technical specification (Items of SCHEDULE of rates and quantities) [Internal concealed wiring]
<p>Explanation</p>	<p>The contractor shall supply the material and carry out the concealed wiring from switch board to load point by using three number copper wires with pipe or without pipe as mentioned in schedule of rates & quantity. The copper wires should be of FRLS PVC insulated, multi-strand, single core 1.1 KV grade conforming to IS-694 (as amended latest) for phase & neutral and earth continuity</p> <p>The point wiring shall include supply & providing modular switches, sockets & accessories such as suitable size chromium/GI plated metal boxes, cover plate, lamp holders, 3 pin ceiling rose, modular plates, etc. There shall be sufficient space (Empty modules) on switchboard to provide fan regulator & sockets, which are supplied in another item of this schedule.</p> <p>There shall be no joint in wires in boards. However, if required same should be through connectors of suitable capacity.</p> <p>All wiring material such as modular switches, sockets, metal box, cover plate and modular plates, lamp holders, 3 pin ceiling rose etc. should be single one makes for all items from mentioned makes & should conforming to IS: 3854 -1997.</p> <p>General guidelines for wiring works: The completed installation, shall be tested in accordance with the provision of I.E. Rules and code of practice.</p> <p>Mains/Sub main: The connection from one main/submain board to another main/submain board.</p> <p>Point wiring: All wiring in a building except that covered by the terms "Mains"/"Sub mains" and also part of the wiring required for the light, fan or plug circuit as case may be will be considered as "point wiring".</p> <p>carry out concealed wiring of Light/Fan Points without pipe (as conduit pipe is separate item) up to 6 meters with FRLS PVC insulated, multi strand three Nos. copper wires of 1.5 sq. mm for phase, neutral and earth continuity conforming to IS-694 (as amended latest). The point wiring shall include supply & providing modular switches with complete associate accessories such as chromium/GI plated metal boxes, modular plates, cover plate, lamp holders, three pin ceiling rose, adopter etc.</p> <p>Wring for separate board having 1 Nos. 6 Amps 5 pin socket & switch: Carry out the wiring up to 3 meters with 2.5 Sqmm. size multistrand FRLS PVC insulated ISI marked copper wire for phase, neutral & one number 2.5 Sqmm. copper wire for earth continuity with PVC pipe from MDB/SDB to this separate board. If as per site condition wiring more than 3 meters is required then the additional length shall be counted as 2.5 Sqmm. mains with pipe.</p>

	<p>Wiring for separate board having 16 Amp multipin Modular socket and switch: Carry out the wiring up to 3 meters with 4 Sqmm. sq. size multistrand FRLS PVC insulated ISI marked copper wire for phase, neutral & one number 4 sqmm. copper wire for earth continuity with PVC pipe from MDB/SDB to this separate board. If as per site condition wiring more than 3 meters is required then the additional length shall be counted as 4 sqmm. mains with pipe.</p> <p>The internal wiring of above said separate board is also to be done by 4 sq. mm. PVC flexible wire.</p> <p>System of internal wiring:</p> <ul style="list-style-type: none"> • The wiring shall be done in accordance with the Indian Electricity act 1910 and Rules 1956 as amended up to date and Rules made there under and IS 732 (Pt. I) and 732 (Pt. II). • Wire used for earth, shall be considered of Green Colour. • Connection to light fitting & ceiling fans and other appliances shall be done with 3- core flexible copper cable of proper size. • Passing through floors and walls: Conductors passing through the walls are to be carried in PVC pipe of the suitable size for wiring. Care should be taken that the cable pass through in straight line without twist or cross in wires, on either end of such holes in the walls. <p>Switches: All the switches shall be placed in the live or phase conductors of the circuit. The entire switch shall be single pole switch of modular type from mentioned makes and shall be "ON" when the knob is down and of type quick make and break.</p> <p>Cables: All cables of not less than 1100 volts grade shall be used for wiring. All conductors shall be of stranded copper and no conductor (except where flexible is used) shall have a cross-section area of less than 1.5 mm Sq. all stranded conductor should be provided with cable socket and lug for connections, joints and termination.</p> <p>Earth continuity shall be provided with FRLS PVC insulated, multi strand, copper wire for wiring of light/fan points and mains/ sub-main as mentioned in schedule of rates and shall run along with wiring in PVC conduit pipe and no tapping in between or twisting will be permitted. All metallic parts shall be suitably earthed. All plug sockets, regulators and fans should be connected with earth continuity wire such that the resistance at the remotest point do not exceed as per standard. Earth resistance should be measured and tested jointly.</p> <p>General: Installation carried out shall conform to IS: 732 (Pt. II) 1983 as amended latest COP for electrical wiring and fittings in building. Special care shall be taken to give superlative look/get up and the quality of work by adopting standard wiring practice, layout etc., installations shall be carried out in conformity with the requirement of I.E. Act 1910, I.E. Rules 1956, as amended up to date.</p> <p>All wiring shall be as near the ceiling as possible and due consideration</p>
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	<p>shall be given for neatness and good appearance.</p> <ul style="list-style-type: none"> • No bare or twisted joint shall be made at intermediate points in the through run of cables unless the length of a final sub-circuit, sub-main is more than the length of the standard coil as given by manufacturer of the cable. If any jointing becomes unavoidable, such joints shall be made through proper junction boxes open to easy inspection. No joints of wires inside Board shall be allowed, if necessary, wires should be connected through connectors. • The wiring throughout the circuit should be such that there is no break in the neutral wire in the form of switch. The neutral should be distinctly marked. • The wiring of all fans/light point should terminate into three-point ceiling rose. Switches controlling the sockets should be on the live side of the line. All sockets outlet should be of multi pin type with earth terminal/pin connected to earth and following E.L.N. in clock wise as per ISS. • The wiring shall be carried out strictly as per code of practice for electrical wiring installations for system voltage of 650 V, (Revised) as per IS 732 (Pt. II) 1983 as amend latest. • Contractor should employ only qualified staff to supervise and carry out the wiring installation work. • Testing: All tests such as Earth resistance test, earth continuity test, insulation resistance test will be carried out as per IS 732 (Pt. III) 1983 as amended latest and I.E. Act and Rules in presence of Railway's representative. Certificate be signed jointly. Test results of the wiring done to be submitted quarter wise and service building wise to Sr. DEE/P/RTM. <p>Measurements: Where wiring between two points is payable in terms of lengths involved, the length will be measured from center of the switch, meter, socket or other equipment's at one end to the center of the switch, meter socket or other equipment at the other end and payment will be made treating this length as the length of wiring. The measurement will be made along the run of the wiring and rounded to nearest meter.</p> <p>In case of point in which a single controlling switch (for example Bell Switch) is mounted separately from a mains or sub-main board the wiring between the feeding board and the controlling switch also should be included while determining the category of the point.</p> <p>Special Clause:</p> <ul style="list-style-type: none"> • Wiring shall include "Main" and "sub-main" to be drawn from the respective main, sub distribution boards and switch boards located at convenient centers duly approved. • All phase and neutral wires shall be looped back only at switches and ceiling roses, where ever necessary and the looping shall be limited to only two wires at each terminal. If more than two wires are required to be looped the same shall be done by suitable mechanical connectors. • Any masonry work involved will be done by the contractor i.e. fixing of
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	<p>wooden plugs, filling up of holes, etc. and all surface properly done after the work and given white washing.</p> <ul style="list-style-type: none"> • The work of wiring should be completed within the time limit specified in the tender schedule. Any deviation from above condition contractor should not be allowed to carry out work, unless taken prior approval from administration. • For Providing switch, socket in existing board: Necessary modification in chromium plated metal boxes, modular plates, cover plates etc. are to be carried out by contractor at his own cost. <p>P.V.C. conduit pipe: The contractor shall supply and lay medium class rigid P.V.C. white colored conduit pipe of minimum 25 mm. dia. in concealed manner. The pipe should be laid in the wall and ceiling of building at the time of its construction. The P.V.C. conduit pipe should be of ISI marked with all accessories such as various sizes chromium plated concealed type metal box, Tee joints, bends, elbow and coupler etc. for concealed wiring. The P.V.C. conduit pipe should be conforming to IS9537 part-III (as amended latest). The rates are inclusive of chasing, providing pipes, fixing with staples and making good surface with cement plaster and the rates of chromium plated concealed type metal boxes are included in wiring item.</p> <p><u>Make: -</u></p> <ol style="list-style-type: none"> 1. PVC CABLE: PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&T\ AVOCAB\ ANCHOR/ BENTEC. 2. PVC PIPE: PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI /BENLO/ KING make. 3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream/white Colour conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN /KINZEL/ PRECISION/ MODI/ BENLO/ KING only. 4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&S/RIDER/ JAINEX/ LEGRAND/ BENLO KING. 5. PVC Box & Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&S /RIDER/ JAINEX/ LEGRAND/ BENLO/KING.
<u>Item No. 08</u>	Supply of material & wiring of light point/ceiling rose point by 1.5mm² copper PVC cable casing-capping pipe/PVC pipe with earth wire without switch.
Explanation	This includes supply of materials and wiring of ceiling rose point with 1.5mm ² single core copper stranded PVC insulated unsheathed FRLS cable in PVC pipe / PVC casing capping using separate PVC pipe/PVC casing capping. Tapping should be taken from Junction Box. This will include ceiling rose on Surface mounting plastic box of suitable size. All points shall be provided with earth wire 1.5mm ² flexible copper conductors PVC insulated FRLS cable green

	<p>colour inside PVC pipe /PVC casing-capping for earth and connected to general earthing arrangement.</p> <p><u>Make:</u> - 1 PVC CABLE: The PVC cable for wiring shall be 1.5mm² to 16mm² stranded copper 1100 Volt grade conforming to IS 694 & of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&T\ AVOCAB\ ANCHOR/ BENLO make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug & junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI /BENLO/ KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Colour/white Colour conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN /KINZEL/ PRECISION/ MODI/ BENLO/ KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&S/RIDER/ JAINEX/ LEGRAND/ BENLO/ KING.</p> <p>5. PVC Box & Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&S /RIDER/ JAINEX/ LEGRAND/ BENLO/KING.</p>
Item No. 09	Supply & fixing Double pole MCB On board including connection.
Explanation	<p>This includes supply of material and fixing of mini/Modular type double pole MCB 5-32 Amp capacity in existing main/sub-board including connections. MCB Shall be as per IS/IEC 60898-1.</p> <p><u>Make:</u> - All MCBs shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&S/RIDER/ JAINEX/ LEGRAND.</p>
Item No. 10	Supply and laying PVC Truncking system 50X50mm for sub main wiring
Explanation	<p>The price shall cover for supply, fixing, testing and commissioning of ISI marked PVC Maxi Trunking (casing caping) of size 50 x 50 mm with all accessories. The PVC Maxi trunking shall be fixed at site by fabricated clamp of 18 SWG GI sheet at distances not more than 1.5 meters by machine screw/GI nut bolts, washers etc. The existing power cables shall be laid in the PVC Maxi trunking properly dressed and secured by means of suitable clamps/fasteners etc.</p> <p>The make shall be PLAZA/ SHRINATH/ CROWN / KINZEL/ PRECISION/ MODI/ BENLO</p>
Item No. 11	Supply & Fixing of LED Tube Light 18/20W fitting including connection
Explanation	<p>This includes supply of material, fixing, testing & commissioning of 1 x 18/20-Watt LED batten fitting with luminous efficacy ≥ 100. The fixture shall be of CRCA channel finished with white polyester powder coating with high UV and corrosion resistance. The fixture shall be equipped with end caps, push fit type lamp holders and mains connector to directly fix 4 feet long LED tube. The LED lamp shall be of 18/20 Watt as per Western Railways' specification no.</p>

	<p>WR/CCG/Specification/P/001 (Rev-01)/2018 of Dt. 28-02-2018. The tube shall be of polycarbonate material. The entire fixture shall be of reputed quality and make.</p> <p>The price shall also cover for fixing testing and commissioning of the complete fitting at site by means of bracket made from GI flat of 25 x 3 mm with nuts, bolts and washers or on heavy duty, ISI marked PVC square box as per site requirement. Connection shall be given by means of 24/0.2 mm three-core flexible copper wire through connector and heavy-duty flexible PVC conduit</p>
Item No. 12	Supply & Fixing of LED Tube Light (40W) fitting including connection
Explanation	<p>This includes supply of material, fixing, testing & commissioning of 4 feet long 40-Watt SMD LED luminary fitting suitable to works on 230 V AC 50 Hz with luminous efficacy minimum 100. The fixture shall be of CRCA channel finished / polycarbonate body with high UV and corrosion resistance diffuser. driver efficiency >85%, THD < 10%, CCT > 6000 deg K, CRI>75, IP-65, surge protection approx. 3 KV & ISI marked confirming to IS 10322 or latest, surface/ hanging mounting with LM 79, LM 80 reports. The fitting shall be as per Western Railways' specification no. WR/CCG/Specification/P/001 (Rev-01)/2018 of Dt. 28-02-2018.</p> <p>The price shall also cover for fixing testing and commissioning of the complete fitting as per site feasibility. Connection shall be given by means of 24/0.2 mm three-core flexible copper wire through connector and heavy-duty flexible PVC conduit</p>
Item No. 13	Supply and fixing of decorative LED Luminaire 36W (2'x2') complete.
Explanation	<p>This includes supply, erection, testing and commissioning of eco-friendly, maintenance free and energy efficient LED module 2'x2' of 36 Watt ± 3 Watt made from CRCA housing with high efficiency diffuser for full glow and constant current electronic driver suitable for 220 - 240 Volt, 50 Hz AC supply as per Western Railways' specification no. WR/ CCG/ Specification/ P/ 001 (Rev-01)/ 2018 of Dt. 28-02-2018. The fitting shall be suitable for recessed mounting arrangement.</p>
Item No. 14	Supply & Fixing of LED Lamp.
Explanation	<p>This includes supply & fixing of LED lamps 230 Volt AC, 9–11-Watt capacity. Make: - Lamp shall be of HAVELLS / PHILIPS / WIPRO / SYSKA / HALONIX.</p>
Item No. 15	Supply & fixing of Brushless DC (BLDC) Motor Ceiling Fan, ISI marked, sweep size: 1200/1400 mm with electronic fan regulator
Explanation	<p>This includes supply and erection of Brushless DC (BLDC) Motor Ceiling Fan, ISI marked, sweep size: 1200/1400 mm, Minimum Air delivery – 210 Cubic Meter/ Min, total harmonic distortion 10% [max], Rated Voltage: 230 V, 50Hz, Single phase AC, Copper Winding, Power factor not less than 0.9, Speed control with electronic Aluminum regulator (step type with minimum 5 running positions), Nos of Blades:03, Blade material: Aluminum, Bearing : Double ball bearings, Down rod size (without shackle) : 300mm, Shank & Shackle kit, canopy : 2 nos., Colour standard: white Service Value > 7, BEE rating : 5 star or above, class of insulation – B, insulation resistance > 2 Mega ohm, temperature rise 75 degree C, Rated power: up to 30 watt, Warranty [Min] 2 years & all remaining accessories including safety pin, nut bolts, washers, earthing etc. Also includes the fixing arrangement as per the site requirement.</p> <p>Conforming to:</p>

	<ol style="list-style-type: none"> 1. IS – 374/2019. 2. The firm has to submit type test report from Government accredited test tabs like NABL/CPRI etc. along with the offer. 3. Routine test Certificates has to be submitted along with supply. 4. Acceptance test shall be carried out by inspection Agency as per IS – 374 (latest).
Item No. 16	Supply & fixing testing & commissioning of wall bracket oscillating fan size 380 mm including connection.
Explanation	<p>This includes supply of material, fixing and commissioning of wall bracket oscillating fan 380mm sweep, operating voltage 230V AC supply, 50Hz on wall including connections. The fixing arrangement shall be done as per instruction of site supervisor. Make: - Wall bracket oscillating fan 380mm sweep shall be BAJAJ/ CROMPTION /GEC/ ALMONARD/HAVELLS/ PHILIPS/ UNIQUE / KHAITAN / SYMPONY / USHA.</p>
Item No. 17	Supply & fixing of exhaust fan 300 mm sweep including connection.
Explanation	<p>This includes Supply & fixing of exhaust fan 300mm sweep with ISI Mark, exhaust fan fixed on regbolts including connection by 3 core flexible PVC copper cable (white/gray color) from existing point. Make: - BAJAJ/ CROMPTON /GEC/ALMONARD /HAVELLS.</p>
Item No. 18	Supply & fixing of exhaust fan 250 mm sweep including connection
Explanation	<p>This includes Supply & fixing of exhaust fan 250mm sweep with ISI Mark, exhaust fan fixed on regbolts including connection by 3 core flexible PVC copper cable (white/gray color) from existing point. Make: - BAJAJ/ CROMPTON /GEC/ALMONARD /HAVELLS.</p>
Item No. 19	Supply of material, erection, testing & commissioning of GI pipe earthing arrangement.
Explanation	<p>This includes supply of material & providing GI Pipe earthing arrangement with electrode GI pipe medium 'B' class of 40 mm Dia, minimum thickness 3.2 mm & 3 Mt. long in length. GI pipe electrode shall be out tapered at the bottom and shall be provided with holes of 12 mm Dia at a distance of 7.5 cm in all sides up to length 2 Mt. from bottom. The electrode shall be buried; vertical. The earthing shall be as per Drag. No. CEE-CCG (WR)/P-1870 (R2) & each pit should be provided with RCC Pit & Cover as per Drag. No. EL/Sr. DEE (P)-RTM/E-P/2010. Earth pipe should be buried and top should not be less than 20cm below ground level. The earth pipe should have GI socket cover with square nut welded at the top or a MS rod hook 10mm of U shape welded on socket of required size for easy opening. A flat GI Strip of size (Approx) 50 x 6mm and 250mm long with clamp of GI Strip of size 50X3mm (Approx) should be nut bolted & welded 10 cm below the top of the pipe with nut bolts of 10mm Dia with flat & spring washers. All nuts, bolts and washer shall be galvanized or chromium plated.</p> <p>The pit should be refilled with charcoal & salt as per standard to achieve desired earth value. The GI wire should be of 6 SWG connected from earth electrode to main board/panel /meter box/earth terminal/pole etc. with necessary clamp. The Earth wire shall be laid in green color PVC sleeve of suitable size. The thickness of sleeve shall be 0.5mm minimum. Curing of pit for 7 days shall be done by contractor.</p> <p>The earth value shall be measured jointly by contractor and Rly official and shall be within prescribed limits i.e. 5 ohms. The pit & cover shall be white</p>

	<p>washed. The earth value shall be painted on each pit as per Rly. Practice with identification of Work Order.</p> <p>Earthing terminal shall be of heavy gauge GI sheet with fixing arrangement of 2 Nos. bolting arrangement with GI nut bolts to be fixed on main board/panel /meter box/earth terminal/pole and all the earth leads shall be on earthing terminal. Earthing should conform to IS 3043.</p> <p>Make: - GI PIPE medium "B" Class as per IS- 1239 & make shall be TATA / ZENITH / JINDAL / PRAKASHSURYA</p>																					
Item No. 20	Supply and fixing of Control panel 100Amp with MCCB& MCB's etc.																					
Explanation	<p>This includes design, fabrication, supply, erection, testing and commissioning of 3 Phase LT panel, Front accessible, cubical type, totally enclosed and vermin proof, fully compartmentalized with concealed type hinged cover on front. All hinged door and covers shall be provided with gasket. The Panel shall be Indoor type, wall mounted, compact size, Powder coated with both sides properly ventilated & & having sufficient space for maintenance. The panel shall be fabricated with 16 SWG MS sheet.</p> <p>The LT control panel shall comprise of: -</p>																					
	<table><tr><th>Sr</th><th>Description</th><th>Unit/Qty</th></tr><tr><td>A</td><td>Incoming circuit</td><td></td></tr><tr><td>1</td><td>MCCB Four pole 100 Amps, 25KA, 415V, 50Hz</td><td>01 No.</td></tr><tr><td>2</td><td>Phase indication LED Type lamps with /holders</td><td>03 Nos.</td></tr><tr><td>B</td><td>Outgoing Circuit</td><td></td></tr><tr><td>1</td><td>MCB Three Pole, 63 Amps, 16 KA, 50Hz</td><td>04 Nos.</td></tr><tr><td>2</td><td>MCB Single Pole, 6-32Amps., 10KA, 50Hz</td><td>04 Nos.</td></tr></table>	Sr	Description	Unit/Qty	A	Incoming circuit		1	MCCB Four pole 100 Amps, 25KA, 415V, 50Hz	01 No.	2	Phase indication LED Type lamps with /holders	03 Nos.	B	Outgoing Circuit		1	MCB Three Pole, 63 Amps, 16 KA, 50Hz	04 Nos.	2	MCB Single Pole, 6-32Amps., 10KA, 50Hz	04 Nos.
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	<p>a) One set of 3 Phase and 1 Neutral copper bus bar of suitable capacity, colour coated on epoxy support insulator shall be provided.</p> <p>b) Internal wiring shall be done through copper stranded PVC insulated cables of suitable size, ISI marked, IS 694 with suitable copper terminal ends.</p> <p>c) Two earthing terminals and danger board shall be provided.</p> <p>d) Suitable lugs and cable glands for all incoming and outgoing cables shall be provided.</p> <p>e) The size of cable chamber shall be adequate and sufficient to accommodate and connect the various cables according to the rating of the MCCB's / MCB's provided in the panel and sufficient space shall be available.</p> <p>f) Labeling for identification of each feeder shall be fixed.</p> <p>Make: -</p> <p>All MCCBs shall be HPL / HAVELLS / L&T /SIEMENS / CROMPTON / STANDARD/ BCH/C&S/HAGER/LEGRAND/INDO ASIAN/BENLO</p>																					
	Item No.21	Supply & fixing of Distribution box 63Amp complete																				
	Explanation	<p>This includes supply, erection, testing, and commissioning of. LT Distribution Panel Company make, made from MS sheet indoor, wall mounting, double door type duly Powder coated. The internal wiring of panel board shall be done with suitable size of flexible copper cable, MS glands of suitable size for</p>																				

	<p>incoming/outgoing cable & panel to be secured on regbolts. The danger board shall be fixed /provided on front cover. The incoming/ outgoing cable shall be provided with crimped terminal lugs. The board shall comprise of following: -</p> <table><tr><th>S r.</th><th>Item Description</th><th>Unit/Qty</th></tr><tr><td>A</td><td>Incoming circuit</td><td></td></tr><tr><td>i</td><td>MCB 3 pole 63 Amp, 50Hz</td><td>01 Nos.</td></tr><tr><td>ii</td><td>Earthing terminals</td><td>02 Nos.</td></tr><tr><td>B</td><td>Outgoing Circuit</td><td></td></tr><tr><td>i</td><td>MCB SP 6 to 32 Amp, 50Hz</td><td>08 Nos</td></tr></table> <p>Make: -1. All Distribution panel shall be Company make shall be HPL / HAVELLS / L&T /SIEMENS / CROMPTON / STANDARD/ BCH/ C&S/ HAGER/ LEGRAND/ INDO ASIAN/ BENLO. All Accessories of same make of Panel.</p>	S r.	Item Description	Unit/Qty	A	Incoming circuit		i	MCB 3 pole 63 Amp, 50Hz	01 Nos.	ii	Earthing terminals	02 Nos.	B	Outgoing Circuit		i	MCB SP 6 to 32 Amp, 50Hz	08 Nos
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Item No.22	Supply, erection testing & commissioning of SFU 125A TPN switch fuse unit with HRC fuse complete as per specification.																		
Explanation	<p>This includes supply of material & providing of Following Items: -</p> <ul style="list-style-type: none">i. The switch fuse unit shall be suitable for DIN Type fuse unit capacity of 125A set of HRC fuses confirming to IS 13703.ii. The unit shall be complete with operating mechanism i.e operating handle, enclosure with cable end box on both (top & bottom) side.iii. The unit shall be provided with cable glands & bi metallic type crimping sockets while connecting cable.iv. The unit shall be with two earth terminals on both the side wall & connected with the earthing available using G.I. wire of 8 SWG size.v. The unit shall be fixed on the wall with proper fixing arrangement i.e., with M.S. brackets/Anchor fasteners of suitable sizes and Nos.vi. The SFU shall be fixed on the wall with provision of M.S bracket made out of M.S flat of size 40mm x 6mm duly painted by anti-corrosive red oxide and silver paint of 2 coats each or in panel. <p>Make: - All TPN SWITCH DISCONNECTOR FUSE UNIT shall be Company make HPL / HAVELLS / L&T /SIEMENS / CROMPTON / STANDARD/ BCH/ C&S/ HAGER/ LEGRAND/ INDO ASIAN/ BENLO. All Accessories of same make of Panel.</p>																		
Item No. 23	Supply & fixing of Split Air Conditioner with Inverter technology 1.5TON. Including stand and all other accessories as per specification.																		
Explanation	<p>This includes Supply, Erection, Testing and commissioning of 1.5 ton/Tr. inverter split air conditioner having eco-friendly non-CFC refrigerant (as recommended by OEM), anti-dust filter, Copper coil confirming IS: 1391 or latest as per the specification given below</p> <p><u>Technical Specifications: -</u></p>																		

Sr. No	Group	Parameters	UOM	Desired Values
1	Generic	Type	-	Cooling Only
		Technology	-	Inverter
		Tonnage Class (+- 10%)	-	1.5
		Star Rating	-	5
		BIS	-	Mandatory
		ISEER	-	Minimum 5.0
2	Cooling	Standard Capacity (As per BEE)	W	5500 Minimum
			Btu/h	17,000 Minimum
3	Electrical Data	Voltage	V-AC	230
		Phase	Φ	Single Phase
		Running Current	A	Less than 6.0
		Input Power (Min-Max)	W	[403 - 1715]
		Cooling Seasonal Energy Consumption	kwh	Less than 760
4	Noise Level	Indoor (Max-Min)	dB-A	47/34
		Outdoor (Max)	dB-A	55
5	Operation Range	Temp Range	oC	16 ~ 55
6	Compressor	Type	-	Rotary
		Motor Type	-	DC (8 Poles)
		Input Power	W	865
		Resistance value at 20°C	ohm	3.14±5%
7	Fan & Motor	Indoor (Fan/Motor)		Cross Flow/DC-8 Pole
		Outdoor (Fan/Motor)		Propeller Fan/DC -8 Pole
8	Piping	Pipe Diameter (Liquid / Gas)	mm(inch)	6.35(1/4)/12.7(1/2)
		Standard length	m (ft)	Flare, 5.0 (16.4)
		Length range (min ~ max)	m (ft)	3(9.8)-15(49.2)
		Type of Gas		R-32, R-410
		I/D & O/D Height different	m (ft)	10(32.8)
		Additional Gas Amount	g(oz)	15(0.53)
		Length for Additional Gas	m (ft)	7.5(24.6)
9	Power Supply	Type	-	Indoor
		Cord	A	16

	10	Remote Control Modes & Features			4-Way Swing, Auto Swing, Powerful Mode, Sleep Mode, Clean Mode, Timer Settings, Stabilizer Free Operation, Anti Corrosive Outdoor
	11	Accessories to be supplied with AC		Meter	Copper Pipe + Drain Pipe + Power supply Cable (3 Meter each)
	12	Warranty	Comprehensive (All Parts)	Years	1
			PCB + Motors (indoor/ Outdoor)	Years	5
			Compressor	Years	10
	Star rating should be valid on the date of supply of complete order.				
Make: Daikin, Panasonic, O-General, Blue star, Lloyd, Mitsubishi, Toshiba, Haier, LG, Hitachi, whirlpool, carrier, Godrej, Voltas.					
<p>This involve laying of Refrigeration gas pipeline with insulation pipe and AC control cable indoor unit to outdoor unit and the cables & pipelines should be wrapped with insulation PVC paper tape. This also includes fixing of wall mounted type MS bracket stand for outdoor unit and after fixing of stand, fixing & installation of outdoor unit also be done. This also involves connection to air conditioner by suitable 4sqmm PVC copper Cable</p>					
<p>This includes erection & commissioning of Indoor and outdoor unit of split AC, electrical connection, internal connections, Gas pipeline connection, charging of refrigerant gas. This also includes erection, testing & commissioning of Split AC unit with accessories like clamp, nut & bolts screw etc. at location.</p>					
<p>This includes supply and fixing of MS stand for outdoor unit of split AC. The stand shall be MS bracket and shall be wall mounted / Floor mounted as per site requirement. Necessary foundation for erection of AC shall be provided by contractor for floor mounted arrangement.</p>					
<p>This includes supply of material & construction of RCC/brick foundation of suitable size as per site requirement, wherever required.</p>					
<p>NOTE: Test Reports of model, Warranty certificate shall be submitted before supplying.</p>					
Item No. 24		Extra refrigeration pipe line& cables			
Explanation		This involves extra pipeline with insulation pipe and electrical cable 4 core 2.5mm ² size to connect indoor unit to outdoor unit. This involve laying of Refrigeration gas pipeline of size ½” & ¼” with installation pipe and AC control indoor unit to outdoor condenser unit and the cables & pipelines should be wrapped with insulation PVC paper tape.			

Item No. 25	Supply, erection, testing & commissioning of three core 2.5sqmm copper cable
Explanation	This includes supply of material, erection, testing and Commissioning 3 core 2.5 mm ² PVC flexible copper cable, ISI marked confirming to IS 694 or latest relevant. Make: - FINOLEX / HAVELLS / KEI / RR KABEL/ Polycab make.
Item No. 26	Supply of Self drinking water cooler with (non-CFC refrigerant) energy efficient compressor, cooling capacity liters/Hr.: 150, Type: Storage, Storage Capacity Liters.: 150, Rate of Max. Energy consumption watt: 1550 as per specification.
Explanation	The price shall cover for supply, Erection, Testing and Commissioning of self-contained drinking water cooler with refrigerant R-22 storage type having stainless steel tank, suitable for operation on 230 V + 5%, 50 Hz, 1 Phase, AC supply & confirming to IS 1475 or latest, nominal cooling capacity 150 ltrs. Storage capacity 150 Liter suitable for Inlet water temp. 30° C/ 35° C and outlet temp. 13° C with full tank. The water cooler should be equipped with sealed hermetic compressor, overload protection, Thermostat etc. This also includes Proper electrical connection of outlet water pipe line. This includes supply of material & construction/ repairing of RCC/ Brick foundation of suitable size as per site requirement, wherever required. Make: Usha/Blue Star /Voltas /Sidwal /Mechelec.
Item No. 27	Supply of materials & lying of perforated GI cable Tray Size 100mm X 50mm with cover and fixing arrangement
Explanation	The contractor shall have to supply and fix the perforated GI tray on Wall/ roof/as per site requirement for cable laying. <ol style="list-style-type: none"> 1. The fixing arrangement shall be robust and the fixing shall have to be done by Angle at an interval of minimum 1.5-meter, nut, bolt, clamp or welding on Wall/ roof/as per site requirement. 2. Cable tray shall not be less than 100X50 mm. and Cable tray perforated shall be Approx 2 mm thick minimum with cover. In case non-availability of the required size next higher size can be used. 3. The cable tray shall be firmly fixed /supported on the Wall/ roof/as per site requirement. 4. The design& fixing arrangement shall have to be approved by Railway before fabrication and installation. 5. Provide proper clamping arrangement for cables laid on it.
Item No. 28 & 29	Laying of 4core 70/25 Sqmm UGAC with heat resisting insulation PVC Insulated and strip type Sheathed Armored Aluminum Conductor cable with 1x8SWG GI wire in existing trench/Pipe/ in air.
Explanation	This includes laying of 1100V grade, PVC insulated Armored aluminum Circular armored AL. PVC 1100 V grade Cable of size 4 CORE 70/25 SQMM with supplying & laying of 1 x 8 SWG GI mild wire, properly secured in pipe/ trench/ walls/ poles/ Platform shed/ trays etc. including connections at both ends along with suitable type and size lugs, bolts etc. At locations where cable is passed through pipes on walls / poles the same shall be secured with MS clamps of suitable size and hardware and proper size & type's glands shall be provided at the entrance of cable in panel junction box etc. The end of cable

	lead shall be properly lugged as per site requirement. The various sizes LT armored cables will be issued by Railway from the store depot of SSE-Stores (Power-GS) RTM free of cost, Necessary arrangements for loading and transportation of cables to site shall be made by contractor. (In One Trench single GI Wire for Earth Shall be acceptable). Supply & laying of 1x8swg GI mild wire shall be done by contractor.
Item No. 30	Digging of trench
Explanation	<p>This item includes excavation of trench in all type of hard/soft soil for laying of cables on a bedding of sand at the bottom of trench and covered the cable with layer of sand. The bricks / RCC slab shall be provided at sides & top of cable along full length of trench.</p> <p>The desired minimum depth of trench for laying cable shall be as under- The minimum depth of trench for laying low voltage cable below 3.3 KV shall be 0.75 meter. If, laying cable at Railway level crossing/track (shall be laid in RCC pipe / HDPE Pipe Grade PE-80 & Class PN-4 of suitable Dia as per IS 4984-1995 or latest), the minimum depth from bottom of sleepers to the top of pipe shall be 01 meter.</p> <p>After laying the cable, the trench should be refilled, re-leveled & restored to original shape. At locations, where required digging is not feasible, RCC/GS/MS pipe shall be laid below the track the payment will be made in proportionate to actual depth & length dug. There is no need to keep bricks/RCC slabs in trench where cable is passed through RCC pipe/ GI/HDPE pipe. Quality of bricks/ RCC slabs shall be got approved by Railway engineer in-charge of work.</p> <p>This also includes cable route indicator with IR engraved and welded on 10mm MS rod at the center of cable route marker and "J" type hook designed at bottom of rod. The cable route marker shall to be provided at every 10 -15 meters length. The length of cable route marker shall be 1 Meter.</p> <p>It must be ensured that, Brick thickness should not be less than 4" and provided in full length of trench at sides & top of cable. Excavation for laying of cable underground should be as per IS 1255-1967.</p> <p>Note: - If the prescribed brick size is not available the approval to different bricks may be taken from site in charge / Sr DEE (P) RTM.</p>
Item No. 31	Digging of Pakki trench
Explanation	<p>This item includes excavation of trench in cement Pebble block / CC Flooring for laying of cables on a bedding of sand at the bottom of the trench and covered the cable with layer of sand.</p> <p>The desired minimum depth of trench for laying cable shall be as under- the minimum depth of trench for laying low voltage cable below 3.3 KV shall be 0.75 meter. If, laying cable at Railway level crossing/track (shall be laid in RCC pipe / HDPE Pipe Grade PE-80 & Class PN-4 of suitable dia as per IS 4984-1995 or latest), the minimum depth from bottom of sleepers to the top of pipe shall be 01 meter.</p> <p>This covers excavation of trench for laying of cable in all type of cemented flooring / Platform / Pebble block. In trench different sizes Cables shall be laid horizontally together & then all these cables shall be covered by 100mm thick layer sand at bottom & top of the cable. There is no need to keep bricks in Pakki trench. After laying the cable the trench should be refilled by Gitties</p>

	(grommets) & reflooring by cement, sand mixture / Pebble block or as per site requirement. At locations where digging is not feasible, payment will be made in proportional to actual depth & length dug and there is no need to keep bricks in trench where cable is passed through RCC pipe / HDPE Pipe / GI pipe.
Item No. 32	Supply of double walled corrugated HDPE Pipes of size 120mm Outer Dia & 103mm inner Dia confirming to IS.
Explanation	This includes Supply & Laying of HDPE double walled corrugated (DWC) pipes of minimum size 120mm Outer Dia & 103mm inner Dia as per IS-14930 or latest relevant and this item is also including coupler etc. for joint two lengths of pipe. The length of HDPE DWC pipe shall be 6 meters with anti-rodent and fire-retardant properties
Item No. 33	Supply and laying of 65 mm dia. DWC pipe complete
Explanation	This includes Supply & Laying of double walled corrugated (DWC) pipes of minimum size 65mm as per IS-16205 or latest relevant and this item is also including coupler etc. for joint two lengths of pipe.