

TECHNICAL SPECIFICATIONS

1. Technical Specification for Item No. 1:

This work includes supply at site LT cables of 4.0 core x 16 Sq.mm LT armoured aluminium Conductor, XLPE Cable of 1.1KV Grade armoured cable. The work include transportation, loading, unloading at site. It's the sole responsibility of contractor, till energizing the cable at site.

2 Technical Specification for Item No. 2:

This includes laying of cable through following type.

(a) Ornamental stone chasing work:

This includes laying of two length cables up to 4.0 core x 16 Sq.mm LT armoured aluminum Conductor XLPE Cable of 1.1KV Grade (excluding supply of cable) through chasing the stonr to 300mm deep & 300mm width. The bed of 50mm of river sand shall be provided in the bottom of the excavated trench. The cable shall be laid over the bed of river sand. The cable shall be protected by providing and laying sand and again laying the ornamental stone as per existing. The excess excavated stuff shall be disposed off from the Site of work and spreader in low laying area as directed.

The contractor shall provide end termination by cable glands at both size with proper crimping of lugs and same is to be terminated to mains. This includes all labour and material as directed by Engineer-in-Charge.

(b) On wall through saddles & clamps:

This includes laying of supplied two length cable up to 4.0 core x 16 Sq.mm LT armoured aluminum Conductor XLPE Cable of 1.1KV Grade (excluding supply of cable) on existing wall/cement structure. The G.I. Saddle set with base & Clamps shall be provided of suitable size (with respect to cable outer diameter) made from G.I. flat 25 x 3 mm with G.I. Nut bolts/heavy duty screws for clamping. The base shall be fixed rigidly on wall/cement structure through cemented wooden gutties at 0.50 mtr. Intervals & the cable shall be laid on 3mm thick G.I. saddle base on wall/cement structure and clamped rigidly by G.I. screwing/bolting of clamps. The work includes with all materials and labour as directed by Engineer-in-charge.

3 Technical Specification for Item No. 3:

(a) The item includes providing & fixing concealed wiring for single phase sub-circuit from the main switch /meter /DBs / MCBs to the switchboard with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 2.5 sq. mm. for phase red colour neutral black colour wire and green for earth, stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 25 mm Diameter of Medium Mechanical Strength (MMS) type and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make. The proper size of grew shall be prepared by contractor on wall/ceiling as case may be & the conduit pipe shall be laid through prepared grew and in case of new construction the pipes shall be laid during reinforcement work. After laying of pipe the grew shall be closed with mixture of cement & sand and to match with existing surface

of wall/ceiling. Complete work consists of necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

- (b) The item includes providing & fixing concealed wiring for single phase sub-circuit from the main switch /meter /DBs / MCBs to the switchboard with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 4.0 sq. mm three wire. for phase red , neutral black wire and green for earth continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 25 mm Diameter of Medium Mechanical Strength (MMS) type and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make. The proper size of grew shall be prepared by contractor on wall/ceiling as case may be & the conduit pipe shall be laid through prepared grew and in case of new construction the pipes shall be laid during reinforcement work. After laying of pipe the grew shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. Complete work consists of necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

4 Technical Specification for Item No. 4

The item includes providing & fixing concealed wiring for light/tube/bell point from switchboard with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 1.5 sq. mm. for phase & neutral wire and 1.0 Sq.mm continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 20 mm Diameter of Medium Mechanical Strength (MMS) type and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make. The proper size of grew shall be prepared by contractor on wall/ceiling as case may be & the conduit pipe shall be laid through prepared grew and in case of new construction the pipes shall be laid during reinforcement work. After laying of pipe in the grew shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling in proper level. The work also includes 3 plate Ceiling Rose/Angle Holder, 6amp flush type piano switch 6A X 250 V, is to be fixed on suitable height with Formica sheet 2mm or of higher thickness with steel screw, The wooden box shall be embedded properly in the wall and the switches shall be fixed on Formica sheet of the embedded box. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

5 Technical Specification for Item No. 5:

The item includes providing & fixing concealed wiring for fan point from switchboard with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 1.5 sq. mm. for phase & neutral wire and 1.5 Sq.mm continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 20 mm Diameter of Medium Mechanical Strength (MMS) type and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make. The proper size of grew shall be prepared by contractor on wall/ceiling as case may be & the conduit pipe shall be laid through prepared grew and incase of new construction the pipes shall be laid during reinforcement work. After laying of pipe the grew shall be closed

with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of Flush type SP switch 6A x 250V with ISI mark and Step cut electronic fan regulator with rotary steps & 3 plate Ceiling Rose made from polycarbonate on suitable size wooden box with formica sheet & steel screw. The wooden box shall be embedded properly in the wall and the switches shall be fixed on formica sheet to be fixed on box. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

6 Technical Specification for Item No. 6:

The item includes providing & fixing concealed wiring for staircase wiring from switchboard with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 1.5 sq. mm. for phase & neutral wire and 1.5 Sq.mm continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 20 mm Diameter of Medium Mechanical Strength (MMS) type/20mm oval shape PVC conduit pipe / PVC Casing Capping and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make as directed by Engineer-in-Charge. The PVC round/oval conduit The work consists providing & fixing of two-way Flush type switch 6A x 250V with ISI mark angle holder made from polycarbonate on suitable size of wooden box with Formica sheet. The wooden box shall be rigidly fixed with cemented wooden gutties on the wall and the switches shall be fixed on Formica sheet with steel screw. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

7 Technical Specification for Item No.7:

(a) Full Plug Point:

The item includes providing & fixing concealed wiring for plug point with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 1.5 sq. mm. for phase & neutral wire and 1.5 Sq.mm continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 20 mm Diameter of Medium Mechanical Strength (MMS) type and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make. The proper size of grew shall be prepared by contractor on wall/ceiling as case may be & the conduit pipe shall be laid through prepared grew and in case of new construction the pipes shall be laid during reinforcement work. After laying of pipe the grew shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of Flush type SP switch 6A x 250V with ISI mark and 2 in 1 socket 6A x 250V made from polycarbonate on suitable size of wooden box with formica sheet of 2mm or higher. The wooden box shall be embedded properly in the wall and the switch & Socket shall be fixed on formica sheet of the embedded box. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

(b) Half Plug Point:

The item includes providing & fixing half point in existing switch board with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 1.5 sq. mm. for phase, neutral & earth. The work consists providing & fixing of Flush type SP switch 6A x 250V with ISI mark and 2 in 1 socket 6A x 250V made from polycarbonate on existing switchboard. The complete work consists necessary wiring connections and earth linking with all materials and labour as directed by Engineer-in-charge.

8 Technical Specification for Item No. 8:

- (a) The item includes providing & fixing surface wiring for plug point with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 1.5 sq. mm. for phase & neutral wire and 1.0 Sq.mm continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 20 mm Diameter of Medium Mechanical Strength (MMS) type/20mm oval shape PVC conduit pipe/PVC Casing Capping and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make as directed by Engineer-in-Charge. The PVC round/oval conduit/PVC Casing Capping shall be fixed rigidly on wall/ceiling with suitable size heavy duty PVC saddle set with base, clamp & screw at the interval of 0.5 meter. The work consists providing & fixing of Flush type SP switch 6A x 250V with ISI mark and 2 in 1 socket 6A x 250V made from polycarbonate on suitable size of PVC box with cover. The PVC box shall be rigidly fixed with cemented wooden gutties on the wall and the switch & Socket shall be fixed on cover of the box. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.
- (b) The item includes providing & fixing half point in existing switch board with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 1.5 sq. mm. for phase, neutral & earth. The work consists providing & fixing of Flush type SP switch 6A x 250V with ISI mark and 2 in 1 socket 6A x 250V made from polycarbonate on existing switchboard. The complete work consists necessary wiring connections and earth linking with all materials and labour as directed by Engineer-in-charge.

9 Technical Specification for Item No. 9:

The item includes providing & fixing concealed wiring for Power point with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 4.0 sq. mm. for phase & neutral wire and 2.5 Sq.mm continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 25 mm Diameter of Medium Mechanical Strength (MMS) type and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make. The proper size of grew shall be prepared by contractor on wall/ceiling as case may be & the conduit pipe shall be laid through prepared grew and incase of new construction the pipes shall be laid during reinforcement work. After laying of pipe in prepared grew the grew shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of 5 in 1 combined unit suitable for 1 with switch, socket, fuse & indicator with ISI mark. The wooden box of suitable size shall

be embedded properly in the wall and the combined unit shall be fixed on formica sheet. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

10 Technical Specification for Item No. 10:

The item includes providing & fixing concealed wiring for plug point for computers (With 3nos. 2 in 1 socket 6A x 250V & 3 nos. Flush type SP switch 6A x 250V) with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire of size 2.5 sq. mm. for phase & neutral wire and 1.5 Sq.mm continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of size 20 mm Diameter of Medium Mechanical Strength (MMS) type and other accessories such as Tee, junction box, inspection bends, elbow etc. of approved make. The proper size of grew shall be prepared by contractor on wall/ceiling as case may be & the conduit pipe shall be laid through prepared grew and incase of new construction the pipes shall be laid during reinforcement work. After laying of pipe, the grew shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of 3 nos. Flush type SP switch 6A x 250V with ISI mark and 3 nos. 2 in 1 socket 6A x 250V made from polycarbonate on suitable size of wooden box with formica sheet. The box shall be embedded properly in the wall and the switches & Sockets shall be fixed formica sheet with steel screw. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

11 Technical Specification for Item No. 11:

(a) Supply: This includes supply at site 8-way & 12-way double door SPN DB with IP42 degree of protection. The DB shall of CRCA sheet and powder coated. The DB shall be fitted with Bus Bar, DIN Rail and neutral links, or as directed by Engineer In charge.

(b) Fixing: This includes fixing and commissioning of supplied double door* way & 12 way DB on wall / structure as directed. The DB shall be fixed rigidly on wall through suitable size of nut bolts / anchor fasteners / cemented wooden gutties as directed. This includes necessary wiring, connections& earth linking with all material and labour as directed by Engineer-in-Charge.

12 Technical Specification for Item No. 12:

(a) Supply: This includes supply at site 4 ft LED Tube light fixture of 20-22 Watt. The tube light shall be operating on single phase 230V, 50Hz AC supply. It shall be with white light and shall be have the facility of clamping the tube rod on fixed clip (on the wall) The LED rod shall be fluctuation proof and shall provide with in-built driver.

(b) Fixing: This includes fixing and commissioning of supplied 4ft LED 20-22 Watt tube light fixture on wall/ceiling at suitable height on cemented wooden gutties as directed and connection with 3 core flexible copper cable from nearest source of supply/ceiling rose & necessary connection with all material and labour as directed by Engineer-in-Charge.

13 Technical Specification for Item No. 13:

(a) Supply: This includes supply of 1200 mm sweep ceiling fan fitted with heavy duty grease filled double ball bearing that ensures noiseless performance and long lasting smoother life of fan suitable upto 250V AC supply. The Fan blades aerodynamically balanced to ensure maximum air delivery at lower power consumption & the blades shall be made of 'heavy gauge' aluminum sheet so as to retain the blade's angle over a longer period. The Fan motor made of superior grade copper wire and impregnated in special varnish for long life operation. The motor shall be totally enclosed and low-loss-silicon steel stampings ensure minimum power consumption with high optimum output. The Fan coated with a special anticorrosive enamel paint that makes them rust free and ensures a classic appearance and longer life. The supplied fan conforming to ISI specifications. The fan shall be supplied all accessories such as down rod 30/60/120cm long, PVC Bobbin, Stainless Steel Nut Bolt with cotter pin, capacitor etc. of approved make and as per IS specification as directed by Engineer-in-charge.

(b) Fixing: This includes fixing & commissioning of supplied ceiling fan with all accessories in existing hook including necessary wiring and connection from nearest point / Ceiling rose through PVC flexible copper conductor wire and earth linking etc. with all material and labour as directed by Engineer-in-charge.

14 Technical Specification for Item No. 14:

(a) Supply: This includes supply of exhaust fan of size 300mm with capacitor start and run type motor, continuously rated, totally enclosed fitted with heavy duty grease filled double ball bearing that ensures noiseless performance and long lasting smoother life of fan suitable for single phase 220/250 Volts A.C. 50HZ. The impeller shall be used in an Exhaust Fan is of the propeller type & both hub and impeller shall be dynamically balanced, frames and arms mounted on rubber bushings, to avoid vibrations.

(b) Fixing: This includes fixing & commissioning of supplied exhaust on existing exhaust hole so that discharge of exhaust air can be done easily. However, if exhaust hole is not provided, it is to be done by contractor. The grouting of the fan is to be done by suitable size of anchor fastener bolts, and by providing metallic mesh/louvers as directed to other side so that birds can be restricted in the passage. This includes connections with 3 core flexible copper cable from nearest source of supply & necessary connections & earth linking with all material and labour and as directed by Engineer-In-Charge.

15 Technical Specification for Item No. 15:

(a) Supply: This includes supply of energy efficient LED 10 Watt, cool white, surface mounted bulk head light fixture of approved make and as desired by Engineer In Charge.

(b) Fixing: This includes fixing and commissioning of supplied LED 10 Watt bulk head light fixture on wall/ceiling at suitable height on cemented wooden gutties as directed and connection with 3 core flexible copper cable from nearest source

of supply & necessary connections & earth linking with all material and labour and as directed by Engineer-In-Charge.

16 Technical Specification for Item No. 16:

(a) Supply: This includes supply of energy efficient LED 20 Watt, Street Light Fixture. The fixture shall be of Pressure die cast housing with toughened glass, the fixture shall have secondary optics for better light distribution. Driver protection against lightening, over voltage, short circuit. Excess to driver shall be from top. The fixture shall be IP 66. Impact protection shall be IK07.

(b) Fixing: This includes fixing and commissioning of supplied LED 20 Watt bulk head light fixture on wall/ceiling at suitable height on cemented wooden gutties as directed and connection with 3 core flexible copper cable from nearest source of supply & necessary connections & earth linking with all material and labour and as directed by Engineer-In-Charge.

17 Technical Specification for Item No. 17:

(a) Supply: This item includes supply of Tamper proof, Shock proof and Rust proof SMC (Sheet Moulding Compound) Junction box with side hinged door and shall be supplied with 5 nos. connectors suitable for 16A x 230 Volts.

The Junction box shall be in single piece without any joints having concealed hinges, mounting screws fitted from inside, Metal hardware for wire seal, light weight and adequate.

The size of SMC Junction Box shall be of inside dimension 140 mm x 140 mm x 95 mm.

(b) Fixing: This includes fixing of supplied Shock proof and Rust proof SMC (Sheet Moulding Compound) Junction box on wall / structure/Pole as directed. The Junction Box shall be fixed rigidly on wall through suitable size of nut bolts/anchor fasteners/cemented wooden gutties and in case of pole it shall be fixed through suitable size of G.I. clamp at least 2mm. thick as directed. This includes with all material, labour tools & tackles including necessary wiring & connections with earth linking as directed by Engineer-In-charge

18 Technical Specification for Item No. 18:

(a) Supply: This includes supply of following MCBs as per the requirements.

- (I) 6 -32 A 230/250V DP C Curve MCB
- (II) 6 -32 A 230/250V SP C Curve MCB
- (III) 32 A 230/250V 32mA DP ELCB
- (IV) 63 A 230/250V 100mA DP ELCB
- (V)

The MCBs shall be of DIN Rail mounted 'C' Series with 10kA Breaking Capacity. The supplied materials shall be conforming to relevant IS.

(b) Fixing: This includes fixing & commissioning of supplied SP/DP/ELCB MCB in existing SPN double door DB on wall / structure. The MCB shall be fixed on DIN Rail provided in existing DB. This includes necessary 1 ϕ / 3 ϕ wiring, connections,

distribution & earth linking of DB with all material, labour tools & tackles as directed by Engineer-In-charge.

19 Technical Specification for Item No. 19:

- (a) Supply:** This includes supply of "OFF LOAD" four pole Change over switch suitable for 32A x 415 Volt & conforms to relevant IS. The unit shall be provided in powder coated sheet steel enclosure. The current carrying parts shall be bright tin plated, fully shrouded live terminals & suitable for accommodating aluminum/copper conductor cable or bus bar termination. The neoprene rubber gasket shall be provided to avoid dust entry & the mechanism shall be suitable for quick make/break operation with handle and mechanically interlocking arrangement to prevent switching ON when cover in open position. The enclosure shall be fitted with removable top & bottom plates with knockouts for entry of cables.
- (b) Fixing:** This includes fixing & commissioning of supplied changeover switch unit 32A x 415 Volt four Pole on wall / structure as directed. The switch shall be fixed rigidly on wall through suitable size of nut bolts/anchor fasteners/cemented wooden gutties as directed. This includes necessary wiring, connections & earth linking with all material, labour tools & tackles as directed by Engineer-In-charge.

20 Technical Specification for Item No. 20:

This includes Supply and preparation of earth station with chemical treated back filled compound corrosion protection by hot dip 25-30mm dia. Pipe-In-Pipe GI type 2 Mtr. Depth, maintenance free including all accessories. This also includes necessary masonry work for preparing of earth pit.

21 Technical Specification for Item No. 21:

- (a) Supply:** This includes supply at site of G.I strip of size 25x3 mm. G.I. Strip shall be hot dip galvanized with minimum 80 Micron uniform coating.
- (b) Laying & Connecting:** This includes laying & connecting of G.I. Strip from earth station/existing earthing system to equipment/ Main DBs or as per site requirement. The work includes all material & labour required shall done as directed by Engineer-in-charge.

**Executive Engineer (E)
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