



# **DEENDAYAL PORT AUTHORITY**

**(Erstwhile Deendaval/Kandla Port Trust)**

**Ministry of Ports, Shipping & Waterways, Govt. of India**

**Mechanical Engineering Department**



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## **EXPRESSION OF INTEREST [EOI]**

"Providing office accommodation port staff at outside cargo jetty area- Electrification work thereof ."

(This EOI is issued to elicit Expression of Interest from the parties interested in the work and does not constitute any binding commitment from the Deendayal Port Authority to proceed with the work or invite any or all the parties in the subsequent bidding process. The Open Tenders will be issued subsequently.)

Executive Engineer (Electrical), DPA invites Expression of Interest for the work of "Providing office accommodation port staff at outside cargo jetty area- Electrification work thereof" from the reputed firms from those who have executed similar work in Government / Public Sector and other leading private organizations. The Expression of Interest (EOI) documents containing details of Scope of Work and Technical Specifications are enclosed herewith.

The interested firms are requested to submit their Expression of Interest (EOI) for the said work in BOQ format as enclosed at Annexure I. The EOI shall be submitted to the office of the undersigned on or before 08/01/2025. A soft copy of EOI is also acceptable through e-mail Id [deepak.hazra@deendayalport.gov.in](mailto:deepak.hazra@deendayalport.gov.in) & [nikunj.solanki@deendayalport.gov.in](mailto:nikunj.solanki@deendayalport.gov.in)

**-/sd**

Executive Engineer (E)  
Deendayal Port Authority

## **SCOPE OF WORK**

The Specification is intended to cover the Electrification work for Providing office accommodation port staff at outside cargo jetty area. The works will be carried out simultaneously with Civil work, which includes electrical part i.e. Supply, Installation and Commissioning of Load Point panel, Ceiling Fans, LED Lights fittings/ internal concealed/surface wiring, the work shall be executed as per IER & to the satisfaction of the Engineer-in Charge. For installation of equipment, the contractor shall arrange all types of tool & tackles. The contractor shall prepare the wiring diagram before execution of work & same shall be submit to EIC. However, after successfully completion of work same shall be handed over in two sets details wiring drawing, relevant test certificate of the material used.

## **TECHNICAL SPECIFICATION**

### **Technical Specification No. 1:**

This includes supply at site 1.1 KV grade, Aluminum conductor, XLPE insulated armored cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments and of approved make with ISI mark. The cable shall have marking/embossing at the interval of every meter showing its progressive length. The contractor shall produce the routine test certificate during supply of cable at site. The rate shall inclusive of all taxes (excluded GST), duties, packing, forwarding, insurance, and transportation and unloading at site of work etc.

- (a) 4CX 120 sq.mm.
- (b) 4CX35 sq.mm.
- (c) 4CX 6sq.mm.

### **Technical Specification No. 2:**

This includes laying of cable size up to size of cable up to 4 core x 150 Sq.mm LT armored aluminum Conductor XLPE Cable of 1.1KV Grade through.

i). In Hard / soft Soil: - the cable shall be laid through excavation in soft/hard soil. The trench to be excavated 0.3 Mtr. Wide 0.6 Mtr. deep. 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. This includes providing & laying of half round RCC Pipe on cable lengthwise i.e. parallel to the cable and the gaps shall be filled by fresh river sand. The cable shall be covered by keeping half round heavy duty RCC NP 2 Pipe. The filling of the trench shall be done with by provided Sand cover (at least 50mm from cable surface) completely & followed by excavated stuff & should be watered and rammed properly to its original position. The excess excavated stuff shall be disposed off from the Site of work and spreaded in low laying area as directed. The contractor shall provide heat shrinkable straight through joint of relevant size of approved make if the laying of cable shall be more than standard drum length,. This includes all labour and material as directed by Engineer-in-Charge.

II). In RCC/Road through HDD method: - Cable shall be laid underneath by using Horizontal Directional Drilling (HDD) method by putting suitable diameter Dia HDPE (suitable for cable size up to LT 4C/3.5CX 150 Sq.mm} HDPE pipe having strength 10Kg/sq.cm} shall in contractor scope), the contractor shall arranged JCB Machine for excavation, water for drilling, de- watering pump, HDD equipment at their own cost. The cable shall be pass through heavy duty HDPE pipe buried at nominal minimum depth 165 cm or according to construction of RCC Road/ RCC network or as per directed by EIC. For single size/length cable, individual HDPE pipe shall be passing through a road /rail crossing, for another cable; separate HDPE pipe shall pass through the Tunnel / trench. Laying of

HDPE pipes coupled by HDPE socket only after standard length in excavated trench/tunnel and also sealing of HDPE pipe ends by suitable cap at every manhole. Back filling & dressing of excavated trenches as per specification. This includes all labour and material as directed by Engineer-in-Charge

IV). In RCC Trench: - The cable shall be laid after opening of RCC trench by removing the RCC Covers & cable trench shall be cleaned properly including removal of garbage, stones, bricks & old unused cables etc from the trench line without damaging the other cables laying in the trench. After laying of the cable, cable trench shall be properly covered with removed RCC covers as per original. The contractor shall provide heat shrinkable straight through joint of relevant size of approved make if the laying of cable shall be more than standard drum length, This includes all labour and material as directed by Engineer-in-Charge.

V).on wall Through Saddle /Clamps:-This includes lying of single length cable of size 3.5C/4.0 core x 35 Sq.mm & 6sq.mm LT armored 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 Heavy duty G.I. flat 25 x 3 mm with heavy duty 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.

### **Technical Specification No. 3:**

This includes Design, supply, installation, Testing & commissioning of outdoor type Load Point panel at site, The works also include, testing Commissioning of outdoor pedestal Load Point Panel with top canopy, Double door, compartmentalized , handle with locking arrangement, dust, damp and vermin proof.

#### **Load point Panel Fabrication/construction salient feature as under:-**

- The Load Point Panel board frame shall be fabricated from Heavy Duty CRCA sheet steel minimum 2.5 mm thick, pressed & shaped.
- The Board shall be enclosed by sheet steel of minimum 2.0 mm thickness smoothly finished & level, door & covers shall be made 1.6 mm thick sheet steel. Adequate stiffeners shall be provided wherever necessary.
- Dust & vermin proof Protection Class: - IP 65.
- Bottom Cable entry.
- All panel edges and door edges shall be reinforced against distortion. Cut outs shall be true in shape and devoid of sharp edges.
- The complete structure shall be rigid, self-supporting free from vibration, twists & bends.
- The Load point panel shall be paint by simens grey paint & treated by 7 tank process DIP ZINC PHOSPHATING process.
- The panel then powder coated with an approved colour shade as per IS.
- The final finished thickness of paint film on steel shall not be less than 50 microns, and shall not be more than 80 microns.
- Finished painted appearance of equipment shall present an aesthetically, pleasing appearance, free from dents and uneven surfaces.

**The Load Point Panel shall be specious for easy maintenance and shall be provided with following electrical Items.**

- 1) 250 Amps 4P Changeover Switch – **1 No.**
- 2) 200 Amps, 10 KA, 4P MCCB. – **1 No's I/c.**
- 3) Digital VAF Meter – **1 Nos.**
- 4) Digital Energy Meter – **1 Nos.**
- 5) 100/5 Amp. CT Coil Class 1, Tape Wound – **3 Nos.**
- 6) Phase R, Y & B Indication Lamp – **03 Nos.**
- 7) Control Fuse (Suitable Rating) for outgoing: **-3 Nos.**
- 8) 125 Amps. 4P MCCB 10 KA, C Curve. – **3 No's O/g.**
- 9) 63 Amps, 4 P MCCB 10 KA, C curve: - **2 No's O/g.**
- 10) 40 amps Power Contactor for Street lighting: -01 Nos.
- 11) Astronomy Timer Switching & Circuit for Street Light: - 01 Nos.
- 12) Main Bus & Taps: -

The board shall be provided with three phase and neutral busbars. Busbars shall be of uniform cross section throughout the length of the board and up to the incoming terminals of feeder circuit breaker/switch, the busbars shall be made of high conductivity aluminum alloy of E91E grade, Busbar joints shall be complete with high tensile steel bolt and washers and nuts. Busbars shall be thoroughly cleaned at the joint locations and suitable contact grease shall be applied just before making a joint, separate supports shall be provided for each phase of the busbars. If a common support is provided for all three phase, antitracking barriers shall be incorporated. Busbars shall be adequately supported and braced to withstand the stresses due to the specified short circuit currents. Busbar supports shall be made of hylum sheets; glass reinforced moulded plastic material or cast resin.

All these components shall be mounted/erected in the Load Point Panel by means of suitable cadmium passivated hardware. The Panel shall be complete in all respects with cable glands, lugs for incoming and outgoing cables including interconnection with PVC insulated cable single core, standard copper conductor of 650/1100V grade.

Load Point Legs shall be heavy duty MS steel with chemical treated free from corrosive & rust, in reinforced foundation of suitable design, base stand of Load Point Panel 300 MM height made from 35X35X5 MM or as per proposed in drawing , SS angle & 2 nos. SS Terminal for earthing. All hinges & support will be corrosive & maintenance free. The works include with necessary Civil Work for foundation.

The Load Point Panel shall be tested as per IS: 4237. Before Manufacturing the Load Point Panel, the relevant test certificate in support of Load point panel manufacturing, along with design & drawing shall be submitted to DPT for approval and also all Electrical accessories shall be used satirically as per Approved Make List of DPA.

**Technical Specification No. 4:**

The item includes providing & fixing concealed wiring for single phase sub-circuit from the main switch /meter /DBs / MCBs to the switchboard with FRLS, 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 suitable 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 groove shall be prepared by contractor on wall/ceiling as case may be & the conduit pipe shall be laid through prepared groove and in case of new construction the pipes shall be laid during reinforcement work. After laying of pipe the groove 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.

#### **Technical Specification No. 5:**

This includes providing & fixing concealed wiring for A.C point with FRLS, 1100 Voltage grade, single core stranded copper conductor wire with IS: 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 with IS: 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 groove shall be prepared in old construction by contractor on wall/ floor and the conduit pipe shall be laid through prepared groove in such case on the ceiling portion the pipe is to be laid on the false ceiling by clamping properly. But for new construction the pipes shall be laid during reinforcement work. After laying of pipe the groove shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling.

#### **Technical Specification No. 6:**

The item includes providing & fixing concealed wiring for Modular light/tube/bell point from switchboard with FRLS, 1100 Voltage grade, single core stranded copper conductor wire with IS: 694/1990 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 groove shall be prepared in old construction by contractor on wall/ floor and the conduit pipe shall be laid through prepared groove in such case on the ceiling portion the pipe is to be laid on the false ceiling by clamping properly. But for new construction the pipes shall be laid during reinforcement work. After laying of pipe the groove shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling/ floor also in case of false ceiling the pipe shall be properly clamped over the ceiling. The work consists providing & fixing of one Module Bell Push/SP switch 6A x 250V with spark shield ISI mark and to meet specifications of IS & 3 plate Ceiling Rose/Angle Holder made from polycarbonate on suitable size of PVC box with cover. The PVC unbreakable concealed box for required modules shall be embedded properly in the wall and the switches shall be fixed on Modular Plates for required Modules on 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.

#### **Technical Specification No. 7:**

The item includes providing & fixing concealed/surface wiring for Modular fan point from switchboard with FRLS, 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 groove shall be prepared in old construction by contractor on wall/ floor and the conduit pipe shall be laid through

prepared groove in such case on the ceiling portion the pipe is to be laid on the false ceiling by clamping properly. But for new construction the pipes shall be laid during reinforcement work. After laying of pipe the groove shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of one module SP switch 6A x 250V with spark shield with ISI mark and to meet specifications of IS, 2 module Step cut electronic fan regulator with rotary steps & 3 plate Ceiling Rose made from polycarbonate on suitable size of PVC box with cover. The PVC unbreakable concealed box for required modules shall be embedded properly in the wall and the switches shall be fixed on Modular Plates for required Modules on 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.

#### **Technical Specification No. 8:**

The item includes providing & fixing half Modular point in existing switch board with FRLS, 1100 Voltage grade, single core stranded copper conductor wire with IS of size 1.5 sq. mm. for phase, neutral & earth. The work consists providing & fixing of one module SP switch 6A x 250V with spark shield with ISI mark and to meet specifications of IS, and 2 Module Modular 2 in 1 socket 6A x 250V with shutter made from polycarbonate on existing modular plate (by considering 3 extra modules for half point in point wiring for light/fan/tube/bell point). The complete work consists necessary wiring connections and earth linking with all materials and labour as directed by Engineer-in-charge.

#### **Technical Specification No. 9:**

The item includes providing & fixing full Modular point in with switch board & socket with FRLS, 1100 Voltage grade, single core stranded copper conductor wire with IS of size 1.5 sq. mm. for phase, neutral & earth. The work consists providing & fixing of one module SP switch 6A x 250V with spark shield with ISI mark and to meet specifications of IS, and 2 Module Modular 2 in 1 socket 6A x 250V with shutter made from polycarbonate on existing modular plate. The complete work consists necessary wiring connections and earth linking with all materials and labour as directed by Engineer-in-charge.

#### **Technical Specification No. 10:**

The work consists providing & fixing of 2 module 25A x 250V socket with ISI mark and to meet specifications of IS & 2 module SP switch 25A x 250V with spark shield with ISI mark and to meet specifications of IS, on suitable size of PVC unbreakable concealed box with 4 module modular plate. The PVC unbreakable concealed box shall be embedded properly in the wall and the fuse, switch & Socket shall be fixed on 4-module modular plate and modular plate shall be fixed on the embedded box. The above switch is to be fitted on the outside of the room to control the lighting ckt of individual switchboard from outside, the work also consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

#### **Technical Specification No. 11:**

The item includes providing & fixing concealed wiring for Modular Power point with FRLS, 1100 Voltage grade, single core stranded copper conductor wire with IS 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 with IS 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 groove shall be prepared in old construction by contractor on wall/ floor and the conduit pipe shall be laid through prepared groove in such case on the ceiling portion the pipe is to be laid on the false ceiling by clamping properly. But for new construction the pipes shall be laid during reinforcement work. After laying of pipe the groove shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of 2 module 16A x 250V socket with shutter with ISI mark and to meet specifications of IS, 1 module SP switch 16A x 250V with spark shield with ISI mark and to meet specifications of IS & 1 module 10/16A fuse unit on suitable size of PVC unbreakable concealed box with 4 module modular plate. The PVC unbreakable concealed box shall be embedded properly in the wall and the fuse, switch & Socket shall be fixed on 4-module modular plate and modular plate shall be fixed on 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.

### **Technical Specification No. 12:**

The item includes providing & fixing concealed wiring for Modular plug point for computers (With 2 module, 4 nos. 2 in 1 socket 6A x 250V & 4 nos. 1 module SP switch 6A x 250V with spark shield) with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire with IS 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 groove shall be prepared in old construction by contractor on wall/ floor and the conduit pipe shall be laid through prepared groove in such case on the ceiling portion the pipe is to be laid on the false ceiling by clamping properly. But for new construction the pipes shall be laid during reinforcement work. After laying of pipe the groove shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of 2 module, 4nos. 2 in 1 socket 6A x 250V & 4 nos. 1 module SP switch 6A x 250V with spark shield with ISI mark and to meet specifications of IS on suitable size of PVC unbreakable concealed box with 12 module modular plate. The PVC unbreakable concealed box shall be embedded properly in the wall / wooden table and the switches & Sockets shall be fixed on 12-module modular plate and modular plate shall be fixed on 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.

### **Technical Specification No. 13:**

#### a) 32 Way TPN Distribution Board

This includes supply of 32-way Double Door TPN DB as per following specification & make.  
Protection device type: Main incomer: Moulded case circuit breaker (MCB) - 3P or 4P  
Outgoing: Miniature circuit breaker (MCB) - 1P or 3P  
Enclosure/Cubicle description: Double door enclosure  
Enclosure material: CRCA  
Colour: White (RAL 9003)  
Environment  
- IP degree of protection IP43

- IK degree of protection IK09

Standards IS 8623-1 IS 8623-3 IEC 61439-3

Product certifications: NABL

Make: L & T/Schneider/Siemens/ABB/Hager.

The DB shall be fitted with Busbar, DIN Rail and neutral link. The rates shall be excluding the cost of MCB as directed by Engineer-in-Charge.

b). 16 way SPN Double Door Distribution Board.

This includes supply of 16-way Double Door SPN DB as per following specification & make.

Protection device type: Main incomer: Moulded case circuit breaker (MCB) - 3P or 4P

Outgoing: Miniature circuit breaker (MCB) - 1P or 3P

Enclosure/Cubicle description: Double door enclosure

Enclosure material: CRCA

Colour: White (RAL 9003)

Environment

- IP degree of protection IP43

- IK degree of protection IK09

Standards IS 8623-1 IS 8623-3 IEC 61439-3

Product certifications: NABL

Make: L & T/Schneider/Siemens/ABB/Hager.

The DB shall be fitted with Busbar, DIN Rail and neutral link.

The work including installation, testing & commissioning above DB on wall by suitable hardware & fasteners and adopted method as per IE rule or as directed by EIC. The works also including with complete necessary wiring, Earthing, linking etc.

#### **Technical Specification No. 14:**

This includes supply at site of DIN Rail mounted 'B' Series various rating MCBs, with 10kA Breaking Capacity. The terminals of MCB shall be serrated type. The rates shall be excluded GST, but inclusive are incidental charges, Transportation charges, insurance freight charges etc.

- a) 63 amps. 4 pole MCB, B Curve.
- b) 40 amps. 2 pole DP MCB, B Curve.
- c) 6-10 amps., 1pole SP MCB, B curve.
- d) This includes supply of 63 Amp., 4 Pole RCCB as per following technical specifications as under.
  - 1) Poles description: 4 P
  - 2) [In] rated current: 63 Amp.
  - 3) Network type: AC
  - 4) Earth-leakage sensitivity: as per standard.
  - 5) Earth-leakage protection time delay: Instantaneous
  - 6) Earth-leakage protection class : Type AC
  - 7) Network frequency: 50 Hz
  - 8) Rated operational voltage : 380...415 V AC, 50 Hz
  - 9) Residual current tripping technology: Voltage independent
  - 11) Rated conditional short-circuit current: 10 kA
  - 12) Rated insulation voltage: 500 V
  - 13) Rated impulse withstand voltage: 6 kV
  - 14) Surge current: 250 A



- 15) Contact position indicator: Yes
  - 16) Control type: Toggle
  - 17) Mounting mode: Clip-on
  - 18) Mounting support: DIN Rail
- Environment

**Standards:** EN/IEC 61008-1

**Product certifications:** ISI SNI

**IP degree of protection:** IP20 conforming to IEC 60529

**Electromagnetic compatibility:** 8/20  $\mu$ s impulse withstand, 250 A conforming to EN/IEC 61008-1.

### **Technical Specification No. 15:**

This includes fixing & commissioning of supplied various rating MCB in above supplied double door DB on wall / structure. The MCB shall be fixed on DIN Rail provided in existing DB. This includes necessary 3  $\phi$  / 1 $\phi$  wiring, connections, distribution & earth linking of DB with all material, labour tools & tackles as directed by Engineer-In-charge.

### **Technical Specification No. 16:**

This includes supply of Round Sleek LED Down Light having Robust Design with Pressure Die-Cast Alu. Housing, ensuring long life as per following technical specification.

- 1) Lumen: 1500 Lm
- 2) System Power: 13 to 15 Watt
- 3) CCT: 6500 K
- 4) CRI >80
- 5) Efficacy of >110 lm/w
- 6) Surge Protection: 2.5 kV
- 7) Input Voltage Range: 130-320 V AC
- 8) Beam Angle 120°
- 9) Optical Cover/Lens Type: Polycarbonate
- 10) Material: Housing: Pressure Die Cast Aluminium  
Diffuser: Polycarbonate  
Clip: Steel Clip (Spring)
- 11) Driver: Yes, Included
- 12) Power Factor (Min): 0.95
- 13) Ingress Protection Code: IP 20
- 14) Mech. Impact Protection Code: IK02
- 15) Warrantee: 2 Year

### **Technical Specification No. 17:**

This includes supply of 30-32 watt LED recessed mounted Robust Design with Pressure Die-Cast Alu. Housing, ensuring long life as per following technical specification.

- 1) Lumen: 1500 Lm
- 2) System Power: 30 to 32 Watt

- 3) CCT: 6500 K
- 4) CRI >80
- 5) Efficacy of >110 lm/w
- 6) Surge Protection: 4kV
- 7) Input Voltage Range: 130-320 V AC
- 8) Beam Angle 120°
- 9) Optical Cover/Lens Type: Polycarbonate
- 10) Material: Housing: Pressure Die Cast Aluminium  
Diffuser: Polycarbonate  
Clip: Steel Clip (Spring)  
Recessed mounting box square.
- 11) Driver: Yes, Included
- 12) Power Factor (Min): 0.95
- 13) Ingress Protection Code: IP 20.
- 14) Mech. Impact Protection Code: IK02
- 15) Warrantee: 2 Year.

**Technical Specification No. 18:**

This includes fixing & commissioning of supplied Round Sleek LED Down Light Luminaries (13 to 15 Watt ) on existing false ceiling by making & providing necessary cut out of fitting dimensions and required supporting material, facilitate mounting in false ceilings as directed. The fitting shall be fixed rigidly nearby fitting through suitable size of screws/nut bolts/anchor fasteners and connections with 3 core flexible copper cable from nearest source of supply/ceiling rose & necessary connections with all material and labour and as directed by Engineer-In-charge.

**Technical Specification No. 19:**

This includes fixing & commissioning of supplied LED (30 to 32 Watt), LED recessed mounted on existing lobby fall ceiling by making & providing necessary cut out of fitting dimensions and required supporting material, facilitate mounting in false ceilings as directed. The fitting shall be fixed rigidly nearby fitting through suitable size of screws/nut bolts/anchor fasteners and connections with 3 core flexible copper cable from nearest source of supply/ceiling rose & necessary connections with all material and labour and as directed by Engineer-In-charge.

**Technical Specification No. 20:**

This item includes supply at site 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 for single phase 230 Volts A.C., 50Hz. The fan should be 5 star ISI mark. The Fan blades shall be 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 angel over a longer period. The Fan motor shall be 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 shall be coated with a special anticorrosive enamel paint that makes them rust free and ensures a classic appearance and longer life. The supplied

fan shall confirm to IS specifications. The fan shall be supplied along with all accessories such as down rod 600 mm length, 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. The rates shall be inclusive of all the taxes (excluding GST), insurance, transportation, unloading at site as directed by Engineer in-Charge.

**Technical Specification No. 21:**

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. The rotary step cut electronic regulator shall be fixed and screwed rigidly on switch board including wiring and connection etc. with all material and labour as directed by Engineer-in-charge.

**Technical Specification No. 22:**

Supply at site 150 watt LED Streetlight constructed of single piece LM6 pressure die cast aluminum housing with exposed polycarbonate lenses. Product should be efficiently designed for effective heatmanagement and provide impact resistance of IK10.

Streetlight should have ingress protection of IP66. Life class of 75,000 burning hours as per L70B50 @ 35 degree Celsius. Streetlight should deliver 21000 lumens at system level with power consumption not exceeding 150W. IT Should be supplied with asphalt potted LED driver having operating range 120-270V AC with PF>0.95 and iTHD<10%. LED driver should have inbuilt surge protection of 4KV and external SPD of 10KV should be duly mounted inside the streetlight. LED Driver should be EMI/ EMC complaint as per CISPR15. Driver should have auto cut-off below 100V and above 325V AC with auto restart. LED driver should withstand 440V AC phase to phase for 8 hours @ 50 degree Celsius. Driver should have separate compartment with Top Openable Cover. The LED fixtures should be suitable for pole pipe bracket which is including with LED. The LED Warrantee applicable for 2 Year. The Rates are inclusive all taxes , excluded GST.

**Technical Specification No. 23:**

This includes fixing & commissioning of supplied LED Street Light for outer periphery on building premises. The supplied fitting shall be fixed on nipple on pipe/bracket on building height. This works includes supply & fixing the street light complete with internal wiring. The works also including necessary wiring, connections & necessary earth linking connections with all material, labour, tools & tackles as directed by Engineer-In-charge.

**Technical Specification No. 24:**

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.

**Technical Specification No. 25:**

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.

**Technical Specification No. 26:**

Supply at site energy efficient LED 10 watt LED surface mounted bulk head light fixture, having lumen/watt is 900. As per the approved make list. The Rates are inclusive all taxes, but excluded GST.

**Technical Specification No. 27:**

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.

**Technical Specification No. 28:**

This includes supply of exhaust fan of size 300 mm 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.

**Technical Specification No. 29:**

This includes fixing & commissioning of supplied exhaust fan as per direction of EIC on 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.

**Technical Specification No. 30:**

This item includes preparation of maintenance free earth station by providing 50mm diameter, 3 meter, 100-micron hot dipped GI chemical electrode with back fill compound including accessories & masonry work. A cement concrete (ratio 1:4:8) chamber of at least 500 mm × 500 mm × 500mm × 50mm (thickness of wall) shall be prepared and a cover of suitable size shall be provided for the chamber. The work shall be carried out to entire satisfaction of Engineer in-Charge. This work includes all material, labour, tools & tackles as directed by Engineer in-Charge.

**Technical Specification No. 31:**

The works include providing & fixing the 8 SWG GI wire, from earth station to equipment / Main DB or as per site requirement by providing & fixing suitable Dia Medium duty PVC conduit pipe in concealed/surface manner. 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.

**Technical Specification No. 32:**

The works include providing & fixing the 25X 3 Hot DIP GI strips, having minimum 80 Micron galvanized coating earth strip from earth station to equipment / Main DB or as per site requirement. 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. The earth strip shall be connected by welding and using heavy duty GI nut bolts rigidly as & when required or as directed by EIC.

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**Schedule-B**

Name of Work: – Providing office accommodation port staff at outside cargo jetty area- Electrical Part

<b>Sr. No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount</b>
1	Supply at site 4 Core, LT armored aluminium conductor XLPE cable of 1.1KV grade of the following type & size as per Technical Specification No. 1 a). 4Core 120 Sq.mm. b). 4Core 35 sq.mm. c). 4 Core 6 sq.mm	700 200 100	m m m		
2	Lying Single / Double length of LT armoured aluminium conductor XLPE cable of 1.1kV grade up to 150 Sq.mm through various route as per Tech Spec.02. I). Through Hard/soft soil excavation. II). Through HDD by putting HDPE pipe. III). Through RCC Trench. IV) Through Saddle Clamp.	250 350 100 300	M M M m		
3	Supply, Installation, Testing & commissioning of Load Point panel as per Tech. Spec. No:-3	1	No.		
4	Providing & fixing following concealed wiring for single phase FRLS sub-circuit from the main switch /meter. DBs / MCBs to the switch board with 2X2.5 sq.mm copper conductor to be used as phase & neutral & earth wire as a earthing as per Tech. Spec. No:-4	400	m		
5	Providing & fixing following concealed wiring for single phase FRLS sub-circuit from the main switch /meter. DBs /MCBs to the Switch board with 2X 4 sq.mm copper conductor to be used as phase & neutral & cooper wire as a earthing as per Tech. Spec. No:-5	400	m		
6	Providing and Fixing concealed wiring for light/tube/bell point with FRLS PVC insulated single core standard 1.5 Sq.mm copper conductor wire as per Technical Specification :-6	200	No.		

7	Providing and Fixing concealed wiring for Fan point with FRLS PVC insulated single core standard 1.5 Sq.mm. copper conductor wire & twin module step cut electronic fan regulator as case may be as per Technical Specification No. 7	60	No.		
8	Providing and fixing concealed wiring for 3X 5/6 A X250 Volt half point as per Technical Specification no:-08	84	No.		
9	Providing and fixing of concealed wiring for 3 x 5 Pin 6A X 240 Volt Modular full Plug Point as per Technical Specification No. 9	100	No.		
10	Providing and fixing concealed wiring for 25A x 250V modular switch & socket for AC Ckt. as per Technical no.10	46	No.		
11	Providing and fixing concealed wiring for 15/16A X250Volt Power point as per Technical Specification no. 11	12	No.		
12	Providing and fixing concealed wiring for 3 x 5/6A X250 Volt plug point with 3nos SP switches for computer as per Technical Specification No. 12	50	No.		
13	Supply, installation, Testing & commissioning of following type distribution board along complete with as per Tech. spec. No: -13 a) 32 Way TPN Double Door Distribution. b) 16 Way SPN Double Door Distribution.	6	Nos.		
		18	Nos.		
14	Supply of Following type of MCCB Din Rail mounted, as per Tech. Spec. No:14. a). 63 amps. 4 pole MCB, B Curve. b). 40 Amp. DP MCB, B curve. c). 6-10 amp SP MCB, B Curve. d). 63 amps. RCCB.	6	No.		
		32	No.		
		80	No.		
		6	No.		
15	Fixing of various rating MCBs / RCCB on supplied distribution Box as per Tech. Specification No. 15.	124	Nos.		
16	Supply of 13-15 Watt LED Down Light as per Technical Specification No. 16.	150	No.		
17	Supply of 30-32 Watt recessed mounted LED Light as per Technical Specification No. 17	55	No.		
18	Fixing of 13-15 Watt LED Down Light as per Technical Specification No. 18	150	No.		
19	Fixing of 30-32 Watt LED Down Light as per Technical Specification No. 19	55	No.		
20	Supply of 1200 mm Sweep ceiling Fan as per Technical Specification No. 20	60	No.		

21	Installation of 1200 mm Sweep ceiling Fan as per Technical Specification No. 21	60	No.		
22	Supply at site 150 watt LED street Light fixture at site as per Technical Specification No. 22.	08	No.		
23	Fixing the 150 watt street light , complete with necessary wiring etc. as per Tech. Spec. No. 23	08	No.		
24	Supply of HOT press moulded Junction Box as per Technical Specification No. 24	08	No.		
25	Fixing of HOT press moulded Junction Box as per Technical Specification No. 25	08	No.		
26	Supply of surface 10 Watt Mounted Bulk head as per technical specification No. 26	20	No.		
27	Fixing of surface 10 Watt Mounted Bulk head as per technical specification No. 27	20	No.		
28	Supply of 300 mm Sweep exhaust fan as per technical specification no. 28	18	No.		
29	Fixing of 300 mm Sweep exhaust fan as per technical specification no. 29	18	No.		
30	Preparation earthing station, chemical treated back filled compound earthing system with Pipe-In-Pipe 50 mm Dia GI type 3m Depth, Maintenance free as per Technical Specification No. 30.	12	No.		
31	Providing & connecting 8 SWG GI earthing wire for earth station to equipment as per Technical specification No. 31	2000	m.		
32	Providing & connecting 25X 3 mm GI earth strip for earth station to equipment as per Technical specification No. 32.	300	m.		
Total Amount in INR					
(In words Rupees _____ only)					
(NOTE: The rates should be inclusive of all taxes, duties, fees, cess etc. and all incidental charges; but exclusive of GST).					

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**Approved Make List for Electrical Items**

<b>Sr. No.</b>	<b>Description</b>	<b>Recommended Makes</b>
1	HT VCB	SIEMENS / CROMPTON GREAVES/ABB/Schneider
1(a)	HV Gas Insulated Breakers	SIEMENS /Schneider/ABB
2	POWER TRANSFORMERS	VOLTAMP/CROMPTON GREAVES /BHARAT BIJLEE/ BHEL/ SIEMENS/ ABB/ Schneider/T&R
3	DISTRIBUTION TRANSFORMERS	EMCO/KIRLOSKAR/PATSON/VOLTAMP/ ABB / Schneider / T&R
4	RESIN CAST TRANSFORMERS	
	A) RESIN CAST IMPREGNATED	VOLTAMP / KIRLOSKAR / EMCO
	B) DRY CAST	VOLTAMP/KIRLOSKAR/EMCO
5	HT XLPE CABLES	POLYCAB/TORRENT/RPG ASIAN/ /GLOSTER/ UNISTAR/ UNISTAR/KEI/FINOLEX/HAVELS
6	LT XLPE CABLES	POLYCAB/TORRENT/RPG ASIAN/ / RALLISON/PRIMECAB/ HAVELLS/ UNISTAR/AVOCAB / ADCAB
7	LT ACB	SIEMENS/L&T/SCHNEIDER/C&S
8	PROTECTION RELAYS	AREVA/L&T/SIEMENS/ABB/C&S
9	LT PANEL	CPRI APPROVED
10	CHANGE OVER SWITCH	SIEMENS/L&T/ABB/C&S/SCHNIDER/ LEGRAND / INDOASIAN
11	SFU FOR MAIN LT DISTRIBUTION PANELS	SIEMENS/L&T/ABB/C&S
12	SFU FOR DISTRIBUTION PANELS & FEEDER PILLERS	SIEMENS/L&T/ABB/C&S/ SCHNEIDER/ LEGRAND/ INDOASIAN/HAVELLS
13	MCCB FOR MAIN LT DISTRIBUTION PANELS	SIEMENS/L&T/ABB
14	MCCB FOR DISTRIBUTION PANELS AND FEEDER PILLERS	SIEMENS/L&T/ABB/C&S/ SCHNIDER/ LEGRAND/ INDOASIAN/HAVELLS
15	MCB/ELCB/RCCB/ RCCBO FOR MAIN LT DISTRIBUTION PANELS	SIEMENS/HAGER L&T/ABB
16	MCB FOR DISTRIBUTION PANELS AND FEEDER	SIEMENS/L&T/ABB/C&S/ SCHNEIDER/ LEGRAND/ INDOASIAN/



	PILLERS	HAVELLS/ STANDARD
17	MCB DISTRIBUTION BOARD	STANDARD / HENSEL/LEGRAND / INDOASIAN / HAVELLS
18	MULTI FUNCTION DIGITAL METER FOR MAIN LT DISTRIBUTION PANELS/DIGITAL KWH METERS	L&T/ENERCON/SECURE/L&G/ RISHABH
19	ANALOG VOLT/AMPARE METER FOR DISTRIBUTION PANELS AND FEEDER PILLERS	RISHABH/AE/ENERCON/L&T
20	SLECTOR SWITCH FOR VOLTMETER/AMPARE METER	L&T/SIEMENS/C&S
21	POWER CONTACTOR & OVER LOAD RELAYS	L&T/SIEMENS/ABB
22	QUARTZ TIME CLOCK SWITCH	L&T/INDOASIAN/SIEMENS
23	PVC WIRE WITH COPPER CONDUCTOR	RR KABEL / KEI / POLYCAB/MILEX/GUJCAB/ STANDARD / FINOLEX / ANCHOR
24	FLUSH TYPE SWITCHES, SOCKETS, HOLDERS AND CEILING ROSES & ELECTRONIC REGULATORS	ANCHOR/MK/NORTHWEST/VINAY /PANAMA / HAVELLS
25	DOOR BELLS/CALL BELLS	ANCHOR/LEGEND/MK/NORTHWEST
26	MODULAR SWITCHES, SOCKETS, PLATES & BOXES	ANCHOR / MK / NORTHWEST / LEGRAND /HAVELLS / INDOASIAN / SIMENS.
27	PVC CONDUIT/OVAL CONDUIT & CASSING CAPPING AND ACCESSORIES	PRECISION/VULCAN/FINOLEX/ GARWARE/ RESTOPLAST/ SWASTIK / BPI
28	GLS LAMPS & FLUORESCENT LAMPS	PHILIPS / BAJAJ / WIPRO / CROMPTON GREAVES / OSRAM / SURYA ROSHNI / GE
29	HPSV, HPMV & METAL HELIDE LAMPS	PHILIPS / BAJAJ / WIPRO / CROMPTON GREAVES / OSRAM / SURYA ROSHNI / GE
30	IGNITORS FOR HPSV, METAL HELIDE LAMPS	PHILIPS / BAJAJ / WIPRO / CROMPTON GREAVES / OSRAM / SURYA ROSHNI / GE
31	LUMINARIES	PHILIPS / BAJAJ / WIPRO / CROMPTON GREAVES / OSRAM / SURYA

		ROSHNI / GE/C&S
31a	LED LUMINARIES	Philips /Bajaj/Wipro/CG/Surya/Pyrotech/Syska/Nessa/C&S having surge Protection $\geq 10KV$ for fittings & internal Surge Protection for Driver of $\geq 4KV$ , LED Chip only OSRAM/CREE/Philips Lumileds/Citizen/ with LM-79,80 CERTIFICATION
32	CEILING FANS	BAJAJ/ORIENT/USHA/CROMPTON GREAVES / ALMONARD/GEC
33	WALL MOUNTING FANS	BAJAJ/ORIENT/USHA/CROMPTON GREAVES / ALMONARD/GEC
34	EXHUAST FANS	BAJAJ/ORIENT/USHA/CROMPTON GREAVES / ALMONARD/GEC
35	HEAVY DUTY INDUSTRIAL WALL MOUNTING FANS	BAJAJ/ORIENT/USHA/CROMPTON GREAVES / ALMONARD/GEC or its equivalent
36	WATER COOLER	VOLTAS/SHRIRAM USHA/BLUE STAR
37	AIR CONDITIONERS	VOLTAS/CARRIER/BLUESTAR/USHA/ HITACHI/LG/ SAMSUNG/ONIDA
38	REFRIGERATORS	VOLTAS / CARRIER / BLUESTAR / USHA / HITACHI / LG / SAMSUNG / WHIRLPOOL
39	VOLTAGE STABILIZER	VEELINE / CAPRI
40	INVERTERS	SUKAM / MICROTEK
41	D.G. SETS	
	A) ENGINE	CUMMINS/GREAVES/KIRLOSKAR/ CATERPILLAR /ASHOK LEYLAND /VOLVO
	B) ALTERNATOR	STAMFORD/CROMPTON GREAVES /JYOTI/ KIRLOSKAR ELECTRIC
42	ELECTRIC MOTOR	ALSTOM/CROMPTON GREAVES /SIEMENS/ KIRLOSKAR/ABB
43	WATER PUMPS	SWASTIK / KSB
44	WATER GEYSER	BAJAJ/USHA / CROMPTON GREAVES / SPHEREHOT / RACOLD
45	LUGS & CABLE GLANDS	DOWELLS / JAINSON / BRACO

**Note:**

Before procurement of supply item / Material , the Make of the material should be approved by EIC in writing.

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