

## Name Of Work: - Renovation of Signal Station (Electrical Part).

### TECHNICAL SPECIFICATION

#### **1. Scope of Work:-** The works mentioned below are in the scope of contractor

- 1.1 The work includes providing & fixing of sub circuits, lighting points, fan points, 5 pin 6 amps plug point, telephone & intercom plug points, computer points / board with modular accessories as directed by Engineer-in-charge.
- 1.2 The work also includes providing & fixing of 9 Watt LED Round down lighter recessed mounted & fixing of existing 1ft x 4ft 40W Led Panel Light, ceiling fans.
- 1.3 The work also consists of removing of existing fitting and its accessories & safely depositing to KPT electrical store and re-fix the same when required also dressing of open cables wires, DP switch boards etc in concealed manner as directed by Engineer-in-charge.

#### **2. Technical Specification No. 1 for Item No. 1 of Schedule-B:**

- 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 & neutral wire and 1.5 Sq.mm continuous stranded copper conductor wire for earth to be laid through PVC Round Pipe of suitable size 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.
- 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 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 size 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.

### **3. Technical Specification 2 for Item No. 2 of Schedule-B:**

The item includes providing & fixing **concealed wiring** for Modular light/tube/bell point from switchboard with Flame Retardant, 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 incase 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.

### **4. Technical Specification 3 for Item No. 3 of Schedule-B::**

The item includes providing & fixing **concealed wiring** for Modular 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 1.0 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.

#### **5. Technical Specification 4 for Item No. 4 of Schedule-B::**

The item includes providing & fixing half Modular point in existing switch board with Flame Retardant, 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.

#### **6. Technical Specification 5 for Item No. 5 of Schedule-B::**

The item includes providing & fixing concealed wiring for 5pin 5A/6A Modular Long plug point with Flame Retardant, 1100 Voltage grade, single core stranded copper conductor wire with IS 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 with IS 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, and 2 Module Modular 2 in 1 socket 6A x 250V with shutter made from polycarbonate on suitable size of PVC box with cover. The Concealed metal box for required modules shall be embedded properly in the wall and the switch & Socket shall be fixed on modular plate of 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.

#### **7. Technical Specification 6 for Item No. 6 of Schedule-B::**

The item includes providing & fixing concealed wiring for Modular telephone/intercom point from distribution box of telephone/intercom placed in the lobby to the room as directed by Engineer-in-Charge. The telephone/intercom wiring shall be done with 0.5 Sq.mm. x 2 Pair PVC insulated & PVC sheathed annealed tinned copper conductor to be laid through PVC Round Pipe with IS 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 grove shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of 1 Module 2 line telephone jack with shutter 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 / wooden table and the 1 Module 2 line telephone jack shall be fixed on modular plate of required modules on embedded box. The complete work consists necessary wiring connections at both the ends with all materials and labour as directed by Engineer-in-charge.

### **8. Technical Specification 7 for Item No. 7 of Schedule-B:**

The item includes providing & fixing concealed wiring for Modular Computer / DATA point from distribution box of Computer / DATA placed in the lobby to the room as directed by Engineer-in-Charge. The Computer / DATA wiring shall be done with LAN Cable CAT -6 to be laid through PVC Round Pipe with IS 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 grove shall be closed with mixture of cement & sand and to match with existing surface of wall/ceiling. The work consists providing & fixing of 1 Module RJ45 Computer Socket with shutter 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/wooden table and the 1 Module RJ45 Computer Socket shall be fixed on modular plate of required modules on embedded box. The complete work consists necessary wiring connections at both the ends with all materials and labour as directed by Engineer-in-charge.

### **9. Technical Specification 8 for Item No. 8 of Schedule-B:**

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 grove 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 plated 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.

#### **10. Technical Specification 9 for Item No. 9 of Schedule-B:**

The item includes providing & fixing concealed wiring for Modular Power point with Flame Retardant, 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.

#### **11. Technical Specification 10 for Item No. 10 of Schedule-B:**

The item includes providing & fixing concealed wiring for A.C point with Flame Retardant, 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 grew 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 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.

### **12. Technical Specification 11 for Item No. 12 of Schedule-B:**

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 including wiring and connection etc. with all material and labour as directed by Engineer-in-charge.

### **13. Technical Specification 12 for Item No. 13 of Schedule-B:**

This includes fixing & commissioning of supplied indoor commercial recessed mounted 1 x 4ft panel LED down lighter luminaries on existing false ceiling in place of twin tube light by making and providing necessary cutout of fitting dimensions as directed and connections with 3 core flexible copper cable form nearest source of supply/ceiling rose & necessary connection with all material and labor and as directed by Engineer-In-Charge.

### **14. Technical Specification 13 for Item No. 14 of Schedule-B::**

Supply at site Round shaped LED of 12Watt Slim LED recess mounted down lighter, having following specification.

Technical Requirement for LED Round recess down lighter

Sr no	PARAMETER	VALUE
1	Input Voltage	100-250V However, condition for voltage fluctuation should be considered and the system should be robust enough to withstand such variation in supply source.
2	Total Harmonics Distortion	Should be less than 15%
3	Lamp efficiency	$\geq 70/w$
4	Power consumption	Minimum 9W
5	Power Factor	$\geq 0.90$
6	Life Expectancy	About 50,000 burning hours at a ambient temp 45degree centigrade
7	LED Driver	Constant Voltage and current
8	Control Circuit	Compatible to LED
9	Input Frequency	50+/-1Hz
10	Colour Rendering Index	Minimum CRI of 70
11	Colour Temperature	Minimum 6500K
12	Make LED	CREE / PHILIPS LUMILED / NICHIA / OSRAM

		/SEOUL SEMICONDUCTOR /SAMSUNG/EPISTAR /LUMENMAX
13	Input Protection requirement	Over current, Over Voltage.
14	Certification preferred/ essential	CE/ROHS/ERTL /UL & ERDI

**15. Technical Specification 14 for Item No. 15 of Schedule-B::**

This includes fixing & commissioning of supplied 9w LED recessed mounted down lighter on existing false ceiling by making & providing necessary cutout of fitting dimensions and supporting material like M.S. rods etc. two nos. retaining clips facilitate mounting in false ceilings as directed. The control gear of 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.

**16. Technical Specification 15 for Item No. 16 of Schedule-B:**

This includes supply of Ding Dong sound doorbell operated at 230/250V A.C. supply.

**17. Technical Specification 16 for Item No. 17 of Schedule-B:**

This includes fixing & commissioning of supplied Bell 2.5 meter from floor or at suitable height on cemented wooden gutties as directed, and connections with 2 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.

**18. Technical Specification 17 for Item No. 18 of Schedule-B**

This includes supply 1400 V.A, AC Inverter or above, With operating voltage 230 Volts A.C. +/- 10% voltage variation, 50HZ of approved make, The inverter shall be along with 12 volts, 150Ah heavy duty maintenance free 2 no's batteries to sustain the load along with all accessories .The rate shall be firm and inclusive of all taxes, excise duty, octroi, packing and forwarding, insurance, loading at supplier's depot, transportation and unloading at site work.

**19. Technical Specification 18 for Item No. 19 of Schedule-B**

The work includes fixing of inverter shall be along with 12 volts heavy duty maintenance free batteries on M.S Stand to sustain the load, complete wiring is to be done at the change over switch with flexible copper cable of suitable size.. The inverter is to be fixed at suitable height from floor level and batteries in the trolley. The grouting is to be done by suitable size of grouting bolt, with all material and labour and as directed by Engineer-In-charge.

**Note:** 1) The drops of the light/fan/plug points etc. shall be considered in suitable size of concealed PVC pipe to be laid along with sub-circuit pipe up to switch board without any extra payment.

- 2) The suitable length of down rods of ceiling fans shall be provided by considering the height of false ceiling, so that fans shall be accommodate below false ceiling without any extra payment.
- 3) If required suitable size of junction box should be provided at the end of the sub-circuit to provide power supply to individual computer point on the table without any extra payment.
- 4) If required contactor shall provide separate junction/distribution box at the end for the telephone / intercom point at the end of the lobby with extra connectors & for the internet point separate junction box should be provided in each room for the working table.
- 5) If any ancillary work arises during the execution of work the Contractor shall complete the item/items by carrying out such ancillary work without any extra payment.
- 6) The work shall be carried out with entire satisfaction of Engineer-in-Charge.

### **SPECIAL CONDITIONS**

Provision in the special condition as numerated below form part of the contract and shall have precedence over the specified printed conditions in the case of diversity if any.

- 1) The tenderer shall be deemed to have carefully examined and studied the site of the work and local conditions before submitting the tender and no claim whatsoever will be entertained for any nature of work arising out of local conditions. He is further deemed to have carefully examined the conditions of contract, specifications, drawings and form of tender and acquainted himself fully with the local rules and regulations and all other matters and things affecting the cost of work and satisfied himself fully regarding the sufficiency of his tender to cover all his obligations under the contract. If any doubt arises during the execution of the contract as the meaning of any portion of these conditions of contract or of the specifications or the form of tender, the same shall be clarified by the Chairman, K.P.T. whose interpretation shall be accepted and acted upon by the tenderer and binding upon him.
- 2) In the event of dimension figures upon a drawing differing from those obtained by measuring drawings shall be referred to the Chairman whose decision shall be final and binding upon the Contractor.
- 3) Erasures, overwriting and insertion in Schedule 'B' are not permitted. Errors, if any should be neatly scored out and duly attested.
- 4) The Contractor shall comply with at his own cost, the rules and regulations in force from time to time for the entry of his persons for carrying out work in the Port Area.
- 5) The Contractor shall be responsible to obtain licence from the A.L.C.(C) Gopalpuri in case of employing 10 or more workers on any day during the execution of work.



- 6) A site order book is to be maintained by the Contractor at the site. The work orders and instructions written in the order book shall be deemed to have been legally issued to the Contractor and the Contractor shall sign each entry in the order book as a token of his having seen the same. The order book shall be the property of the Board and shall be handed over to the Engineer-in-charge of the work in good condition after completion of the work or whenever required by the Engineer-in-charge or his authorised representative.
- 7) The notes and date contained in the K.P.T. schedule of rates in force will be considered for measurement purpose in the case of various materials as regards to load, weight of materials, covering capacities and voids etc.
- 8) The Contractor shall be required to execute the work in such a manner as not to cause any damage, hindrance or interference to the Port activities and the work going on in the area. The Contractor shall have to make good the loss at his own cost and risk all damages caused by his workman Port property and no extra payment shall be made to him on that account.
- 9) All the works in this contract until handed over to the Engineer-in-charge shall stand at the risk of the Contractor who shall be responsible to make good at his own cost all loss and damages caused due to fire, weather or any other cause, Contractor shall hand over at the completion of work, all the work in good orders and conditions and in conformity in every respect with the requirements of the contract and instructions of the Engineer-in-charge.
- 10) The Engineer-in-charge will be entitled to deduct or adjust any sum of money payable by the Contractor to the Board under the terms of any contract executed by him or on his behalf from the security deposit or from any sum that becomes due from the present contract.
- 11) The Contractor has to use the materials of the specifications attached. They have to produce **two sets** of samples of these items along with their tenders duly identified and sealed also to Engineer-in-charge, and the materials will have to be shown to the Engineer in charge and got approved by Engineer in charge before use of bringing to site.
- 12) All the tools, ladders etc for executing the work will have to be arranged by the Contractor at his own cost. Arrangement for storing of the materials, tools etc will also have to be made by him. The Board shall not be responsible for any theft/loss of any materials tools etc stored/brought by the Contractor for execution of work.
- 13) The work shall be carried out in accordance with best standards of workmanship and to the entire satisfaction of the Engineer-in-charge.
- 14) All the rules and regulations governing K.P.T. will be applicable.

15) All the Labour acts, rules and regulations in force from time to time are to be followed by the Contractor.

16) GUARANTEE: -

- a. The tenderer shall give guarantee of 12 months against workmanship for the work carried out by them and shall **replace** the defective materials if any **free of cost** from the date of acceptance. The security deposit of the Contractor shall be refunded only after the expiry of the guarantee period. The guarantee does not cover the lamps & fuses.
  - b. The security deposit will be 10% of the contract value, which will be collected by deducting from the R.A. bill of the Contractor and the earnest money, if deposited in cash at the time of tender will be treated as a part of security deposit. The security deposit will also be accepted in cash or in form of Government Securities and F.D.R. and guarantee bond of nationalized bank having branch at Gandhidham. The Security Deposit will stand covered into a performance guarantee for 12 months from the date of taking over the work in satisfactory condition to the K.P.T as per the tender conditions.
17. While carrying out the work of electrical nature, the Contractor shall adhere to the provisions of the Indian Electricity Rules, 1956 and as amended from time to time and shall not violate any regulations which he will be solely responsible.
18. No materials unless otherwise specified in tender required for the work will be provided by Port and the Contractor has to arrange for all the materials unless specified.
19. The tenderer shall include in his tender for supply and installation and commissioning including testing of all items as described in the specification of Schedules to cost of all minor ancillary work such as making holes for cable entries and grouting the same, breaking and making flooring for passing the cables etc. and supply and installing all minor items such as GI clamps, grouting materials, tools and tackles, masonry equipments, nuts, bolts, screws, cable jointing kits and its accessories, cement, sand, paints and other items that may be required for executing the work satisfactorily.
20. The various work described in this tender shall be carried out in accordance with the specifications tender drawing and the schedule of this tender, if the tenderer has got any doubt or difficulty about the exact requirement, he may contact Chief Mechanical Engineer, Kandla Port Trust, New Kandla. If he feels some part of work is not covered by the item in the schedule, he may quote the same as an extra under a

separate covering letter. If he fails to do so, it would be presumed that he has fully understood the requirements and it will be obligatory on his part to complete the work in all respect.

21. The work shall be programmed in such a way that the electric supply to the existing installations is not disturbed to the extent possible keeping in view of the work of cutting existing cables, making straight joints and terminating cable ends in the feeder pillar, switchgear etc. shall be carried out within the shortest possible shut down periods to instruction.
22. The cable to be supplied by the Contractor shall be in standard drum length and straight joint shall be avoided as far as possible. In case same cannot be avoided the Contractor shall supply the requisite number of straight joints complete with jointing materials and accessories shall carry out the jointing work at their cost.
23. Necessary marking and lettering giving details of the circuits, cables etc shall be carried out on the pedestal and LT panels as per the directions given.
24. All the supporting frame work of the switchgear and other equipment shall be painted with two coats of primer and two coats of finishing paints of grey shade no 631 of IS : 5 after proper surface cleaning, degreasing, chemical cleaning as per the recommendation of the manufacturer.
25. Caution board vitreous enameled written in three languages, one being the regional language, shall be fixed or displayed to indicate danger and supply pressure according to the Indian Electricity Rules 1956 wherever the supply is at 440 Volts and above.
26. The Contractor has to provide the materials and equipments of following make as per the approved list
27. The Contractor shall have valid Electrical Contractor's license for carrying out Electrical work of the nature involved in this tender obtained from Chief Electrical Inspector I.M. & P Department, Government of Gujarat without which the tender shall not be accepted. The Contractor shall submit certificate and copy of the license in lieu of the same for consideration. The Contractor shall also have a valid Electrical Supervisor's Certificate of competency issued from the Chief Electrical Inspector, I. M. & P. Department, Government of Gujarat or equivalent authority from the other States/Central Government.

28. INSURANCE:- Materials shall be insured as follow:-

- a) All the materials shall stand insured in the name of Chairman, K.P.T from the time of arrival at site till commencement of erection against fire, pilferage and damage for the value of 90% of each item.
- b) During erection and till the work is completed and satisfactory taken over by the K.P.T after testing the materials shall stand covered by suitable erection insurance also for the value of 110% of the item. The charges for the insurance shall be borne by the Contractor.

29. TERMS OF PAYMENTS: -

- i. 70% of the item rate against receipt of the materials at site in good condition and after inspection.
- ii. 20% of item rate after completion of erection, installation testing & commissioning etc.
- iii. 10% will be kept as security deposit and will be released after successful completion of guarantee period of 12 months.

**Signature  
& Seal of Contractor**

**Executive Engineer (E)  
Kandla Port Trust**