

**Name of Work:****PROVIDING STREETLIGHT AT RAMESH METAL QUARY,SAROJ QUARY & MAHATMA GANDHI NAGAR,WARD NO 80.**

**SCOPE OF WORK :**

The work under this contract in general is

1. The work shall be carried out in accordance with the prevailing Indian Electricity rule & acts by employing requisite no. of qualified, experienced & Licensed Manpower.
2. Agency is required to do survey of particular Area before quoting tender & has to give justification & explanation & rate analysis for rate quoted.
3. Agency has to execute work as per the instruction of Engineers in charge.
4. Agency shall installed brand new material approved by NMMC under supervision of Engineer-In-charge strictly.
5. Electrocutation to any human being or animal will be sole responsibility of agency. In such case Agency's license will be recommended for cancellation to respective department.
6. Agency has to do lisioning with MSEDCL for power supply arrangement.
7. Agency should provide the specified material for said work of following makes.

Sr no	Item	Make
1	LED Fitting	Fitting should be supplied as per technical specification.
2	Cable	Polycab/Asian/Finolex/Vishal
3	Terminal Box	ELM or Equivalent approved by Engineer in Charge
4	Minipillar	ABAK/L & T/ Siemens

8. Defeat liability period for the work will be one year.

**9. Specifications**

**Street light LED fitting.**

**Luminaire Specifications:**

- LED street light Luminaire with lumen packages as specified elsewhere in tender complete with single piece pressure die cast aluminum housing with supplier word mark / name embossing on the die cast housing,(Sticking / screen printing is not acceptable) to allow traceability till the end of life.
- The housing should be single piece PDC aluminum aesthetically designed with Black / Silver Grey color corrosion resistant polyester powder coating with a toughened glass diffuser fixed firmly to the frame for all the wattages with a suitable mounting arrangement. Shall consist of separate optical and control gear compartment. Driver should be easily replaceable in the field condition. Heat dissipation should be managed through a built-in external heat-sink made from high pressure die cast aluminium.
- The fixture should be provided with suitable number of 'High Power Surface Mounted Device LEDs' with Wattages ranging between 1watt to 3 watt each and with corresponding driving current, The operating current of LED should be less than 70% of rated max driving current,
- Data Sheet of LED should be submitted with the documents

- The LED's used in the Luminaire should have been tested for at least  $T_s=105$  deg C and report should show testing results for a minimum of 9,000hrs and extrapolated to 50,000hrs based on TM21 at 700mA or higher.
- The luminaire light distribution should have zero candela intensity at an angle of 90 degree and more when installed. Valid Photometric report should be submitted (LM79) along with the technical bid document.
- The luminaire should be able to operate with constant light output at constant operating voltage of 230 V supplied voltages using the same driver, delivering minimum 100 lumens/watt at system level. The lumen efficacy of the LED should be more than 110 Lm/W @700mA drive current @  $T_j = 85$  Deg C.
- Power Factor of the electronic driver should be  $> 0.9$  and with THD $<20\%$  for all wattages.
- The Luminaire shall employ Structured LED array for optimized area photometric distribution with photometric lenses designed to optimize application efficiency and minimal glare, individual optical lens to be provided on each LEDs on a molded lens plate fixed mechanically (Glue fixing of individual lens on led is not allowed).
- Fixture should be full cut off type. The Spread of the Streetlight should be more than 70 Degrees & throw should be more than 30 degrees. Valid LM79 report should be provided from UL/ ERTL / ERDA only on demand by department.
- The fixture should have minimum impact resistant of IK 06 while the ingress protection with suitable protection by using cover for driver and LEDs should confirm to minimum IP 66.
- The Color Rendering Index of typical 70 with color temperature 5700K with variation limits of  $\pm 355$ K) per ANSI C78.377A CCT.
- Standard makes of LEDs: CREE, NICHIA, LUMILEDS, OSRAM only.
- The Driver should be electronic potted type with the driver efficiency more than 85%. It should be able to withstand 320 V for 48 hours & 380 V for 1 hour.
- The luminaire should have an additional surge protection of 10KV (DM/CM) within the fixture at mains supply and a surge protection of 4 KV inside the driver.
- The system lumen efficacy of the entire luminaire should be more than 100 lumens/ W. Valid LM 79 report should be submitted along with the technical bid

- LED streetlight should be tested as per IEC (International Electronic commission) / or relevant equivalent Indian standards and following test reports should be submitted at the time of approval : Thermal test, Ingress protection test, Electrical & Insulation resistance test, Endurance test, humidity test, Resistance to heat, fire and tracking, drop & vibration. Test report should be submitted from NABL approved test laboratory.
- The fitting should work satisfactorily in the temperature range of minus (-) 5 deg C to 50 deg C and humidity range of 10% to 90% RH.
- Product should be warranted for 24 months from the date of supply/installation against any manufacturing defects or satisfactory performance.

### **L.T. XLPE ARMoured CABLES**

#### **1.0 Codes and Standards :**

- 1.1 The design, manufacture, testing and supply of the cables under this specification shall comply with the latest revisions including amendments of the following standards.

IS : 7098-I- XLPE insulated heavy duty cables for working voltages upto 1100 Volts.  
 IS : 3961-II- Recommended current ratings for cables.  
 IS : 8130 - Conductors for insulated cables.  
 IS : 5831 - XLPE Insulation and outer sheath of electric cables.  
 IS : 7098-I- Test Procedures for cables.  
 IS : 10418- Specification for drums for electric cables  
 IS : 3975 - Mild steel wire, strips, and tapes for armoring of cables.

#### **2.0 Technical Requirements :**

- 2.1 All XLPE Aluminium/Copper Power cables shall be 1100 Volts grade, multi core constructed as per IS : 7098 Part-I of 1988 as follows :

- a) Stranded Aluminium /Copper conductor in case of 10 sq.mm. and above and solid conductor in case of 10 sq.mm. and below.
- b) All Aluminium/Copper XLPE cables insulation shall be of high grade Cross-linked Polyethylene from insulation for extrusion process.
- c) Cores laid up
- d) The inner sheath should be bonded over with thermo-plastic material for protection against mechanical and electrical damage.
- e) Armoring should be provided over the inner sheath to guard against mechanical damage. Armoring should be Galvanised steel wires or galvanised steel strips.

(In single core cables used in A.C. system armoring should be non-magnetic hard aluminium Wires/Strips. Round steel wires should be used where diameter over the inner sheath does not exceed 13 mm; above 13 mm flat steel armour should be used. Round wire of different sizes should be provided against specific request.)

- f) The outer sheath should be specially formulated heat resistant black PVC compound conforming to the requirement of type ST2 of IS : 5831-1984 extruded to form the outer sheath.