

## **SECTION-10**

### **LIGHTING FIXTURES**

#### **1.0 Luminaires and Lamps**

##### **1.1 Scope**

- 1.1.1 The scope of this section comprises of Supply, erection, testing and commissioning of lighting fixtures for internal lighting, wherever required, of the specified models.
- 1.1.2 Without restricting to the generality of the foregoing, this section shall include luminaries, lamps and accessories necessary and required for the installation.
- 1.1.3 Whether specifically mentioned or not, the luminaries and lamps shall be provided with all fixing devices, terminal blocks, holders etc. as required.

##### **1.2 General Requirements**

- 1.2.1 All the luminaries and lamps shall be of best quality and as per approved makes. Wherever alternative makes are specified the choice of selection shall remain with the Engineer-in-Charge.
- 1.2.2 The luminaries and lamps shall be fixed in a neat work man like manner, true to level and in accordance with manufacturer's instructions.
- 1.2.3 The luminaries and lamps shall be provided with such accessories as are required to complete the item in working condition whether specifically mentioned in the specifications, drawings or not.

##### **1.3 Luminaries**

- 1.3.1 Luminaries shall comply with relevant IS.
- 1.3.2 Unless otherwise indicated, enclosure of luminaries shall provide a minimum degree of protection of IP20 when located within buildings and IP 44 when located outside buildings, but luminaries mounted externally; and less than 2 M above finished ground or paved level shall be IP 65 or more unless specified in BOQ.
- 1.3.3 Unless otherwise indicated, luminaries, both with and without built-in ballast or transformers shall be suitable for direct mounting on normally flammable surface.
- 1.3.4 Where specific requirements related to flame propagation and flammability of translucent covers are indicated, certificates of tests shall be submitted to the Engineer-in-Charge. The tests shall comply with relevant IS.
- 1.3.5 Terminal blocks for connection of the supply cables shall be of adequate size for the size of conductors forming the loop in wiring unless separate tails are required. Wherever indicated, the terminal block shall incorporate a fuse of suitable type and rating.
- 1.3.6 Translucent covers and reflective surfaces shall be clean at the completion of the works.

## **1.4 Lamps**

- 1.4.1 Lamps shall be of the LED type and ratings shall be as per BOQ or equivalent.
- 1.4.2 All lamps shall be supplied and installed by the contractor unless otherwise directed.
- 1.4.3 Lamp caps shall be suitable for the lamp holders listed socket by means of a locking ring.
- 1.4.4 Efficiency of LED shall be min. 95 Lumens/Watt.
- 1.4.5 Life of lamp should be more than 50,000 burning Hours.
- 1.4.6 CRI (Colour Rendering Index) should be min. 80 for indoor applications and Min. 70 for outdoor applications.
- 1.4.7 THD (Total Harmonic Distortion) should be less than 10%.
- 1.4.8 Type of Housing should be extruded aluminum/Standard alloy housing for indoor applications. High pressure die cast aluminium/standard alloy for outdoor applications.
- 1.4.9 Surge Protection should be shall be provided conforming to relevant IS standard/IEC 61643-II class-2 & EN 61643-II type-2.
- 1.4.10 Labeling/Identification mark should be manufactures name/Logo engraved/Embossed on housing/body or Name/Logo on aluminium plate Labels or Name/Logo printed on housing/body.
- 1.4.11 Warranty period should be 5 years warranty from actual date of completion of work on complete luminair including driver/control gear LED all accessories etc.
- 1.4.12 Power Factor should be equal to 0.95 or more.
- 1.4.13 Total power consumption of fitting should be not more than 110% of rated capacity of LED light.  
  
An undertaking be obtained from fitting manufacturer regarding conformation about use of said make LED's in their fittings.

## **1.5 Support and Fixings**

- 1.5.1 Where LED luminaires 1200 mm or more in length are supported directly by the conduit system, they shall be fixed to two circular conduit boxes both of which shall form an integral part of the conduit system.
- 1.5.2 Where the weight of a luminaire is supported by a conduit box or cable trunking, the fixing of the conduit box or trunking shall be adequate for the purpose and approved by Engineer-in-Charge.
- 1.5.3 Luminaires fitted with LED lamps and having metal back plates shall not be fixed directly to conduit box in which thermoplastic material is the principal load bearing member.
- 1.5.4 Support of luminaires from cable trunking shall be by means of proprietary clamps or brackets.