The application of Energy Efficient LED based Luminarie are as under

(i) For outdoor : Street light, High Mast & platform open area
(ii) Platform Lighting
(iii) For Indoor: offices, service buildings etc.

4. CONSTRUCTION :

a) All the luminaire shall be finalized based on the performance requirement. The detailed calculation for lux level as per clause no. 7.8 with uniform distribution including the lux distribution curve/ graph/ spatial distribution shall be submitted in support of the dimensions selected and variation thereof. Housing shall be made of 1.6mm or more thick sheet Steel conforming to IS: 513 (Grade O) or aluminum die cast having high conductivity preferably to grade 5000 or similar to high conductivity heat sink material for outdoor fittings and 1 mm or more thick sheet Steel conforming to IS: 513 (Grade O) for indoor fittings. Efforts shall be made to keep the overall outer dimensions as minimum as possible.

All out door light fittings shall be provided with toughened glass of sufficient strength under the LED chamber to protect the LED and luminaries.

(b) Suitable number of LED lamps shall be used in the luminaries. LED lamps of NICHIA/ CREE/ OSRAM/ SEOUL/ PHILIPS LUMILEDS/ LEDNIUM/ AVAGO make shall be used for the purpose. The manufacturer shall submit the proof of procurement of LED from above OEMs at the time of testing.

(c) Suitable reflector / lenses may also be provided to increase the illumination angle

(d) Supplier will be solely responsible for testing and performance of the luminaries after installation and shall also ensure the specified and uniform illumination and comfort level on the street/platform for outdoor and work desk/floor for indoor lighting.

4. CONSTRUCTION :

(e) Design of the thermal management shall be done in such a way that it shall not affect the properties of the diffuser.

4.1 High power and high lumen efficient LEDs suitable for following features shall be used:

a) The efficiency of the LED lamps at 110°C junction temperature shall be more than 80%.

b) The working life of the lamp at junction temperature of 110°C for 350mA current shall be more than 50,000 hours of accumulative operation and shall be suitable for continuous operation of 24 hours per day these features shall be supported with datasheet.

c) Adequate heat sink with proper thermal management shall be provided.

d) Colour temperature of the proposed white colour LED shall be between 5700 – 6500K.

e) Minimum view angle of the LED shall not be less than 120 degree

f) The output of LED shall be more than 100 lumens per watt at minimal operating current and shall ensure guaranteed operation life of 50,000 burning hours with controlled junction temperature of 110°C.

g) Efficiency of driver electronics shall be more than 85%.

h) Power factor of complete fitting shall be more than 0.95.

i) The driver card shall withstand 440V & 1.5 KV ± 3% surge protection and shall resume norma working when nominal voltage is applied again.

j) Thermal management shall be in such a way that LED junction temperature shall not go beyond 80 degree centigrade.

k) Lumen maintenance report as per LM 80 standards for the LEDs used & LM 79 standards for efficacy of fixtures shall be submitted along with the offer or at the time of prototype test.

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