

fixtures can not be fastened to ceilings they shall either be suspended or fastened to the wall as directed by the Engineer. Fluorescent lights shall be of standard manufacture, the instant start type and its tubes shall be "Day Light" colour model. The control gear shall be suitable for 230 volts, 50 Hz and for climatic conditions prevailing on Site. They shall be power factor corrected for 0.9 or better. Fixtures with audible hums are not accepted. The internal wiring shall be the silicon rubber insulated copper conductor and shall be clipped neatly in position. High frequency electronic starters shall be used in locations where stroboscopic effect needs to be minimised. The resistance of lighting system, when tested with all the fitting and fixture installed and switches in ON position, should be more than 1 mega ohms between phase to earth and neutral to earth with neutral disconnected from main supply during testing.

- B. The contractor shall submit schematic layout drawing for lighting illumination indicating intensity of illumination, supported with illumination level calculation at different locations / areas for approval. The design shall be in accordance with DIN 503, maintaining level of illumination as indicated below. The quantity of lighting fixture mentioned in B.O.Q are only tentative, exact no. of fitting shall be as per approved layout drawings based on illumination level calculations.
- C. The light intensity shall be measured at 80 cm from ground level and the results submitted to the Engineer for approval and acceptance:
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|--------------------------------------|-----------|
| a. MCC room, pump room               | 400 lux   |
| b. Roads                             | 20 lux    |
| c. Footpath & paved areas            | 15 lux    |
| d. Outdoor equipment operation areas | 300 lux * |
| e. Outdoor tanks/ storage areas      | 100 lux   |
| f. Other rooms                       | 300 lux   |
- \* to be achieved with spotlights or directed floodlight.
- D. Lighting facilities shall be provided to all paved areas and to the access road of the pumping station site.
- E. Lamps shall be installed at locations approved by the Engineer and shall be of the type indicated on drawings.