Task 2.14

October 23, 2001

Draft Performance Specification - Photosensors

Performance Requirements

Photosensor must:

1. Independently adjust illuminance when dimming begins (E_1)
   1a. $1 \leq E_1 \leq 10{,}000$ lux
2. Independently adjust illuminance when dimming stops (E_2)
   2a. $1 \leq E_2 \leq 10{,}000$ lux
3. Any adjustment must not affect E_1 or E_2 by more than 5%
4. $E_2 \geq E_1$
5. Photosensor must be able to interface with a ballast such that $\phi_2 \leq \phi_1$
6. Gain must not deviate by more than 10% for $(E_2\text{-}E_1)/0.8\ \phi_1$ throughout the dimming range

Provisions must be made during operation and commissioning for occlusion of the photosensor from direct illumination from natural and electrical light sources (shielding provisions is necessary).

Subject to the previous provision, the light-sensitive element of the photosensor must have an unobstructed acceptance angle of at least 2 Ω ($\geq$ 50% maximum response).

Electric lighting levels must not dim at a rate faster than 1% per second so that the dimming rate is acceptable to occupants.

The device must have a spectral response that is photopic with a maximum f_1' error of 30%. (f_1' is defined in CIE Publication No. 69, "Method for characterizing illuminance and luminance meters," CIE, 1987).

Incremental adjustments of illuminance of the set points E_1 and E_2 < 5% of E_1 and E_2 respectively.

Installation and Commissioning: > 25 minutes

Failure Mode: Lights on/full brightness

Products Shall: Have silent operation

Operating Temperature Range: 0 to 35 C

Operating Humidity Range: 45 to 85%

Power Requirements: > 1 watt