

18.3.2 Glare control

Glare control for outdoor lighting is quantified by the glare rating. The glare rating is calculated using the method set out in CIE Publication 112: 1994 (see Section 17.3.2 for details) and in the *SLL Code for lighting*. The glare rating will vary with viewing direction. For altitude, it is usually assumed that the observer is looking 2 degrees below the horizontal. For azimuth, calculations are done in 45 degree steps around the observation point.

It is important when designing security lighting to be clear about the value of glare. Where clear visibility at a distance is important to those guarding a secure area or those using a public area, glare needs to be carefully controlled. A glare rating of 30 or less is recommended. This can usually be achieved by eliminating any direct view of the light source for all luminaires mounted below 5 m. Where the security lighting is to be used to make it difficult for potential intruders to see into a site, glare is a positive so a direct view of the light source and a low mounting height are encouraged. For such applications, a glare rating of 70 or greater is recommended.

18.3.3 Light source colour properties

Light source colour properties are important for naming colours, an element in many witness statements. The ability to name colours accurately and confidently is determined by the light source spectral power distribution and the illuminance. Any light source with a CIE general colour rendering index greater than 60 will allow accurate and confident colour naming at the illuminances used in public spaces at night. High pressure sodium lamps allow accurate but less confident colour naming at the higher illuminances used for public spaces but both the accuracy and confidence decline at lower illuminances. Low pressure sodium lamps do not allow accurate colour naming under any illuminance and any confidence felt about being able to name colours is misplaced (Saalfeld, 1995).

18.4 Approaches to security lighting

18.4.1 Secure areas

The first question to consider is whether to light the space at all. It can be argued that lighting a secure area advertises the presence of something worth taking and hence attracts criminals, so keeping the area dark is a better approach. However, if the criminal already knows the area contains valuable materials, then the absence of lighting makes the secure area more difficult to defend. Thus the choice of whether to light or not depends on the owner's assessment of risk. If the risk of criminal activity is high, lighting is desirable. If the risk of criminal activity is low, then providing lighting may be counterproductive.

Area lighting: area lighting is commonly used in large open areas such as storage yards and container terminals. Typically, these sites are lighted uniformly by floodlighting or roadway luminaires on poles 10 m or more in height. For typical roadway and floodlighting luminaires mounted singly on poles, the desired illuminance uniformity can be achieved by spacing the luminaires at six times their mounting height. The actual spacing will depend on the luminous intensity distribution of the luminaire.

If the area is unobstructed by trees, structures or topography, the most economic installation will be one very tall pole carrying many high-wattage lamps. However, this solution is a false economy as it also produces the poorest illuminance uniformity, the harshest shadows, and the greatest amount of light trespass. If the area contains obstructions, as in container terminals, a design utilising multiple source locations will reduce shadowing.