

10.2.7 Access

All lighting installations require maintenance. For this to occur, access is necessary. When designing an industrial lighting installation, it is essential to consider how access is to be achieved without disrupting operations.

10.2.8 Rotating machinery

Where rotating or reciprocating machinery is present a stroboscopic effect is possible. A stroboscopic effect is evident when oscillations in the illumination of a moving object cause that object to appear to move at a different speed from the speed it is actually moving or even to appear to be stationary. All light sources operating from an alternating current electrical supply produce oscillations in light output. Whether these oscillations are enough to produce a stroboscopic effect will depend on the frequency and amplitude of the oscillation. The closer the fundamental frequency of light oscillation is to the frequency of rotation and the larger the amplitude of light oscillation, the more likely a stroboscopic effect is to occur. The probability of a stroboscopic effect occurring can be reduced by:

- using high-frequency electronic control gear for discharge lamps
- mixing light from light sources operating from different phases of the electricity supply before it reaches the relevant machinery
- supplementing the general lighting of machinery with task lighting using a light source with inherently small oscillation in light output, such as an incandescent lamp.

10.2.9 Safety and emergency egress

Some consideration of the impact of lighting on safety is appropriate in all lighting applications but it is particularly important in industrial situations. This is because of the complex layout of many plants, the hazards associated with some manufacturing processes and the dangers from moving equipment.

Minimum illuminances are recommended for safety whenever the space is occupied, ranging from 10 lx where there is little hazard and a low level of activity to 50 lx where there are definite hazards and a high level of activity. But illuminance alone is not enough. Hazardous situations can arise whenever seeing is made difficult by disability glare, strong shadows and sudden changes in illuminance.

Emergency lighting is required in all industrial premises (see Chapter 8): When designing emergency lighting, it is essential to understand the hazards associated with different operations so that the appropriate form of emergency lighting can be determined, i.e. which areas can be evacuated immediately, which areas contain operations that need to be shut down before leaving, and which areas contain operations that need to be maintained.

10.3 Lighting recommendations

There are many different industrial operations but there are also some areas common to many industrial premises. These will be discussed here. Details on lighting for a range of specific industries are given in SLL Lighting Guide 1: *Industrial lighting*.