

When selecting a range of suitable lamps, the designer must consider the types of luminaires that are available and the degree of light control and light output required. Accurate light control is more difficult with large area sources than with small area sources; however, the latter will have a higher luminance (for the same output) and are potentially more glaring.

Standardisation of a limited selection of lamp types and sizes without compromising visual requirements for a particular site or company can simplify maintenance and stocking.

3.6.2 Selection of luminaire characteristics

In addition to being safe, luminaires may have to withstand a variety of physical conditions – e.g. vibration, moisture, dust, ambient temperature, or vandalism. Also, the external appearance of the luminaire, its fixing and location must be in sympathy with the architectural style of the interior. General guidance on the characteristics of luminaires can be obtained from *Luminaires*, see Sony CD.

Safety is assured by using equipment meeting the required standards, as in *Luminaire standards and marking*, and in *Luminaire quality systems and approval marks* (see CD).

Luminaire reliability and life will have a direct impact on the economics of the scheme. The ease with which luminaires can be installed and maintained (*Maintenance of lighting installations*, see CD) will also affect the overall economics and convenience of the scheme. For example, luminaires that can be unplugged and detached, or that have removable gear, can simplify maintenance by allowing remote servicing.

Not only must the luminaire withstand the ambient conditions, it may also have to operate in a hazardous area such as a refinery, mine or similar environment. In this event, special equipment is required to satisfy the safety regulations. This subject is covered by the *CIBSE Lighting Guide: Lighting in Hostile and Hazardous Environments*.

The light distribution of the luminaire influences the distribution of luminance and the directional effects that will be achieved. The illuminance ratios are described in *Luminaire characteristics* (see CD) and section 3.6.3, *Illuminance ratio charts*, for a regular array of a given luminaire, and can be calculated by a number of methods. Currently the method given in *CIBSE Technical Memorandum 5* is recommended, although it is likely that *Technical Memorandum 5* will be replaced shortly.

The utilisation factor (UF) for a luminaire is a measure of the efficiency with which light from the lamp is used for illuminating the working plane (see section 3.8.3, *Average illuminance (lumen method)*).

For a given interior and set of environmental conditions, the lamp, circuit and luminaire performance will influence the installed power of the lighting system. The power density (W/m^2) of alternative solutions should be compared with the target ranges given in section 2.4.3, *Lighting energy targets*. Nevertheless, the system of the lowest installed load will not necessarily achieve the lowest energy use if a greater degree of energy management control can be achieved with one type of lamp rather than another (see section 3.7, *Energy management*).