21.4 Room surface cleaning

All room surfaces should be cleaned and redecorated regularly if a dirty appearance and light loss is to be avoided. Regular cleaning is particularly important where light reflected from the room surfaces makes an important contribution to the lighting of the interior, e.g. where daylight from the side windows is used or where the electric lighting installation has a high indirect component such as uplighting (see Section 21.7).

21.5 Maintained illuminance

The illuminance recommendations in the SLL *Code for lighting* and in this *Handbook* are all given in terms of maintained illuminance. Maintained illuminance is defined as the average illuminance over the reference surface at the time maintenance is carried out. In other words, maintained illuminance is the minimum illuminance that the lighting installation will produce, on that surface, during its life.

Using maintained illuminance for recommendations implies that the designer must obtain a decision from the client on the maintenance policy to be implemented throughout the life of the installation in order to determine the maintenance factor to be used in their calculations. If this cannot be achieved, the designer must clearly state the assumed maintenance programme used in the design calculations.

21.6 Designing for lighting maintenance

The maintenance requirements for a lighting installation must be considered at the design stage. Three aspects are particularly important:

- The maintenance factor used in the calculation of the number of lamps and luminaires needed to provide the maintained illuminance. Maintenance factor is defined as the ratio of maintained illuminance to initial illuminance. The closer the maintenance factor is to unity, the smaller the number of lamps and luminaires that will be needed. This approach demands a commitment to regular and frequent maintenance. Unless this commitment is fulfilled the installation will not meet the recommended maintained illuminance during its life.
- Practical access and handling. Good maintenance will only occur if access to the lighting installation is safe and easy, and the lighting equipment is straightforward to handle.
- Equipment selection. The dirtier the operating environment, the more important it is to select equipment that is resistant to dirt deposition.

21.7 Determination of maintenance factor for interior lighting

The quantity used to take account of the planned maintenance schedule when designing a lighting installation is the maintenance factor. The maintenance factor (MF) for an indoor lighting installation is a multiple of four factors:

$$MF = LLMF \times LSF \times LMF \times RSMF$$

where: LLMF is the lamp lumen maintenance factor
LSF is the lamp survival factor
LMF is the luminaire maintenance factor
RSMF is the room surface maintenance factor.