

There is still much to learn about design for visual amenity but it would be negligent to ignore it. The best way to develop an understanding of visual amenity is through personal observations and trial installations.

6.2.4 Lighting and architectural integration

All elements of a lighting installation contribute to the architecture or the interior design of a building. Understanding the space will be important when deciding what sort of lighting is to be employed. The dimensions, finishes, texture and colour of the materials forming the space and the appearance of the luminaires, lit and unlit, should be considered if the desired atmosphere is to be achieved.

A good place to start is with the daylighting since the windows and roof lights are a fundamental element of the fabric of the building. This means considering the amount and pattern of daylight required for the particular application, and hence the size and positions of windows and roof lights. But windows cannot be designed on the basis of the daylighting alone and other visual, thermal, acoustic and privacy issues need to be addressed. Only a few lighting designers get involved with daylighting design. This is a pity because only a few architects have the skills to design an effective and efficient window system, which means that many opportunities are lost. More information on daylighting design can be obtained from the SLL Lighting Guide 10: *Daylighting and window design* and Chapter 7 of this *Handbook*.

Once the daylighting has been determined then the electric lighting can be planned. To integrate electric lighting with the architecture means considering not only its operation with respect to the daylighting, but the appearance of the luminaires and controls and the way they are incorporated into the fabric of the building, as well as the lighting effect produced. Just as the light pattern needs to be meaningful with respect to the building use, the lighting scheme needs to be meaningful with respect to the architecture.

6.2.5 Energy efficiency and sustainability

It is the responsibility of the lighting profession to use energy as efficiently as possible but at the same time to provide lit environments that enable people to operate effectively and comfortably. The current estimate for the UK is that approximately 19% of the electricity generated is consumed by lighting. This amounts to around 64 TW·h/annum.

Energy use involves two components: the power demand of the equipment and its hours of use. The lighting industry has worked hard to develop equipment that has reduced the demand for electricity for lighting by producing more efficient light sources and their related control circuits, as well as more efficient luminaires. Then there are design options to be considered, such as the use of task/ambient lighting rather than a blanket provision of light by a regular array of ceiling mounted luminaires. The savings for the task/ambient approach have been estimated to be up to 50% (Loe, 2003).

Good energy efficient lighting design is not just about equipment; it is also about the use of lighting. There are many examples where lighting is left on when it is not required. This may be because there is inadequate lighting through daylighting or because people are not present and therefore the lighting is unnecessary. This aspect of lighting design needs a dramatic change in attitude to improve the energy efficiency of all lighting installations. This requires changes to how the lighting is controlled both manually and automatically as well as how lighting is provided in terms of the distribution of light, particularly with respect to the daylighting. It is also necessary for the lighting industry and its customers to use equipment that is sustainable.