

Windows also need to be considered in terms of their solar shading because solar shading can have an impact on both the visual and thermal environment through the admission of sunlight. The impact on the thermal environment is through the heat gain and heat loss of the whole building and, locally, on the likelihood of thermal discomfort caused by overheating due to excessive thermal radiation (sunlight) or overcooling, due to radiant heat loss to a cold window or the generation of draughts. Visual and thermal discomfort is unlikely if direct sunlight is excluded from working areas, although there is a desire for sunlight to be visible in non-working areas. Solar shading can be achieved through fixed features of the building such as light shelves and adjustable features such as blinds (Littlefair, 1999).

Even when sunlight is excluded from working areas, windows can still be a source of discomfort if bright clouds or sunlight falling on blinds cause high luminance reflections in computer screens.

Guidance on the design of windows is given in the SLL Lighting Guide 10: *Daylighting and window design*.

7.5.2 Clerestories

Clerestory windows are strictly a narrow strip of windows high up on the wall (Figure 7.8). They may be vertical or sloping. Because of their position, clerestory windows provide deeper penetration of daylight into the space but little by way of a view out. Clerestory windows provide a direct view of the upper parts of the sky so care is necessary to avoid glare.



Figure 7.8
Clerestory windows
and a rooflight

One way to increase the penetration of daylight even further into the space is to fit prismatic refractors in clerestory windows instead of conventional glass. The effect of these refractors is to bend the light from the upper sky up onto the ceiling, from where it will be diffusely reflected. Good quality refractors are required if bright spots on the ceiling are to be avoided.

Guidance on the design of clerestory windows is given in the SLL Lighting Guide 10: *Daylighting and window design*.

7.5.3 Rooflights

Rooflights are a glazed opening in the roof of a building. Rooflights can be vertical or sloping (Figures 7.8 and 7.9). Rooflights can be oriented to minimise sun penetration as in the traditional north-facing monitor roof.