Given that the optical properties of the screen are such that reflections are likely to be seen, then the geometry of the screen becomes important because it determines the probability that high luminances, such as those produced by luminaires, will be in a position to cause disturbing reflections in the screen. Office lighting installations are almost always installed in or on the ceiling, so the further the screen is tilted from the vertical the more likely it is that disturbing reflections will occur. As for screen curvature, the more curved the screen, the larger the area of the office that is reflected in the screen.

Wherever possible, it is desirable to know the optical and geometric properties of the screens that will be used in the office because different properties place different constraints on the design of the office lighting (see Section 9.3.3 Maximum luminances).

9.2.4 Daylight availability

Most offices have access to daylight through windows. Depending on the time of day and season of the year, the weather conditions, the size and shape of the windows, the orientation of the windows and the presence of external obstructions, the amount of daylight available in the office can vary over a wide range. It will always be necessary to install electric lighting for use after dark but whether or not to invest in a control system that automatically adjusts the electric lighting to supplement the available daylight will depend on the amount of daylight available. As a crude guide, in offices where the minimum daylight factor is less then 2 percent there is little to be gained from modifying the electric lighting. Where the minimum daylight factor is more than 5 percent, controlling the electric lighting to blend with daylight should always be considered.

Of course, daylight will only be available if the window is unobstructed and a short walk around any business district will show how frequently windows are obstructed. Windows may be obstructed for a number of reasons. Among them are visual discomfort caused by a direct view of the sun or bright sky; visual discomfort caused by the presence of high luminance patches of sunlight on the workstation; visual discomfort caused by reflected images of the windows in computer screens; and thermal discomfort caused by excessive radiant heating or cooling. Visual discomfort can be minimised by careful attention to external shading of the windows or the use of different types of glazing or internal screening (see SLL Lighting Guide 7: *Office lighting*). The problem of reflections from computer screens can be solved by orienting the screens so that they are perpendicular to the plane of the windows. As for thermal problems, these have to be dealt with through the heating and ventilating system.

9.2.5 Ceiling height

Ceiling height is important for office lighting design because it determines whether indirect lighting is an option. Floor, furniture and wall mounted indirect lighting luminaires rely on height to shield the occupants of the office from a direct view of the lamp. This is the reason why the vast majority of floor mounted luminaires are at least 1.8 m high and why wall and furniture mounted indirect luminaires should have their top surface at least 1.8 m above the floor.

This minimum height above the floor for luminaires sets a minimum ceiling height that can be used for indirect lighting. As a rule of thumb, floor furniture and wall mounted indirect lighting luminaires are best used with ceiling heights in the range 2.5 m to 3.5 m. Below 2.5 m there is a risk of high luminance ‘hot spots’ being produced on the ceiling. Above 3.5 m the additional energy consumption required for floor mounted indirect lighting becomes difficult to justify.