lating the average daylight factor. This value can then be compared with the criteria given in section 2.2.1, Daylight for general room lighting.

The average daylight factor may be calculated as follows:

$$D = \frac{TA_w\theta}{A(1 - R^2)}$$

where T is the diffuse light transmittance of the glazing, including the effects of dirt, blinds, curtains and any other obstructions or coverings; A_w is the net glazed area (in m^2) of the window; and θ is the angle (in degrees) subtended by the visible sky (θ is measured in a vertical plane normal to the glass, from the window reference point, as illustrated in Figures 3.2 and 3.3); A is the total area (in m^2) of the interior surfaces – ceiling, walls, windows, floor; R is the area-weighted average reflectance of these interior surfaces (in initial calculations for rooms with white ceilings and mid-reflectance walls, this may be taken as 0.5).

The equation should not be applied where external obstructions cannot be represented by a single angle of elevation, such as where a window faces into a courtyard. Alternative calculation methods are available for complex cases.

If all the windows in a room have the same transmittance and face the same angle of obstruction, the average daylight factor may be found at once by letting A_w be the total glazed area. Otherwise the average daylight factor should be found for each window separately, and the results summed.

3.4.3 Daylight for task illumination

The daylight illuminance (E_{in}) at a point in a room may be estimated using the following equation:

$$E_{in} = E_h f_o D$$

where E_h is the external unobstructed horizontal illuminance in lux (see Figures 3.4 and 3.5); f_o is a window orientation factor (this allows for the effects of window orientation – see Table 3.1); D is the daylight factor at the point in the room, expressed as a fraction (i.e. the percentage value divided by 100).

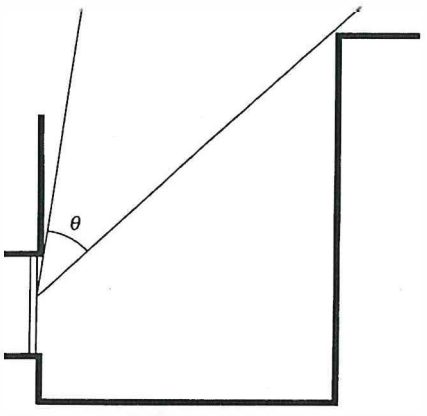

Figure 3.2 Angle subtended in a vertical plane normal to the sky; θ is the angle subtended in a vertical plane normal to the window, by sky visible from the centre of the window

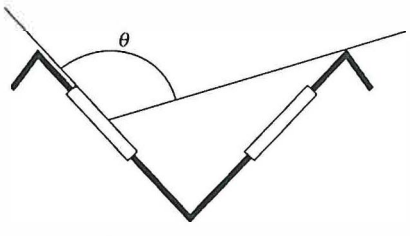

Figure 3.3 Angle subtended in a vertical plane normal to the rooflight; θ is the angle subtended in a vertical plane normal to the rooflight, by sky visible from the centre of the rooflight