consisting of 260 days, each of 8 hours, the total annual energy consumption would be:

$$260 \times (8 \times 0.56) \times 3 = 3494\,\mathrm{kW/h}$$

In rooms that empty for lunch, the lighting may be switched off by the last person to leave. Here it would be reasonable to treat the periods before and after lunch separately. In the example cited above, if lunch ends at 1330 h, the probability of lights being switched on after lunch is taken as 37 per cent, during lunch as 0 per cent, and during the morning as 56 per cent (as before). Thus if the morning is assumed to be 4 hours and the afternoon 3 hours, with a 1-hour lunch period, the total annual energy consumption will be:

$$260 \times [(4 \times 0.56) + (3 \times 0.37)] \times 3 = 2613\,\mathrm{kWh}$$

This represents a saving of 881 kW/h per year compared with the installation without lunch-time switch-off.

If luminaires are logically zoned with respect to the natural lighting, with convenient pull-cord switches for the occupants to use, each zone can be treated as a separate room. The probability of switching would differ from zone to zone, depending on the minimum orientation-weighted daylight factor in each zone. Figure 3.12 would still be applicable, but the minimum orientation-weighted daylight factor, and consequent energy savings, must be estimated separately for each zone.

A room occupied intermittently can be treated similarly, but some assumption must be made about the periods when the space will be empty.

3.8.1.5 Photo-electric control

On/off switching (Figure 3.13)

Photo-electric controls will normally be zoned to take full advantage of daylight. Figure 3.13 shows the percentage of a normal working year during which the luminaires would be off, as a function of the orientation-weighted daylight factor (see section 3.4.3, Daylight for task illumination) and of the illuminance at which the luminaires are switched; the 'trigger' illuminance. These curves

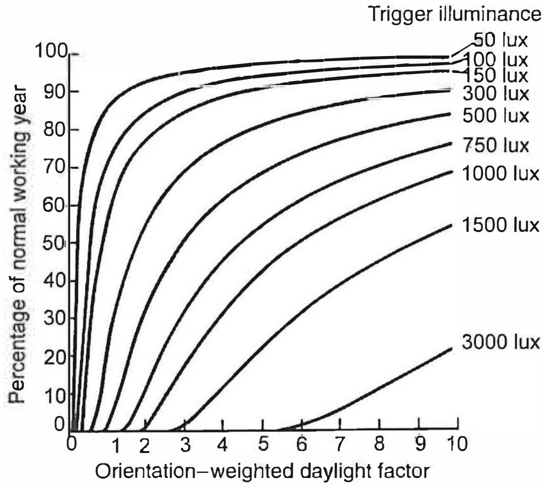

Figure 3.13 On/off switching by photo-electric switching