Table 10.2 Lighting recommendations for direct lighting in control rooms

Activity	Average illuminance (lx)	Minimum colour rendering index	Maximum unified glare rating
Display screen tasks, self-luminous mimic diagrams	300	80	19
Paperwork tasks, general display boards	500	80	19
Low contrast mimic diagrams	1000	80	19

10.3.2 Storage

Many industrial premises contain areas where raw materials or finished product are stored. In such areas, many visual tasks are performed on vertical surfaces at different heights (Figure 10.5). The lighting designer will require a lot of information regarding the movement of goods and proposed stocking arrangements if all the lighting needs are to be met. In particular, the location of fixed items such as racking is critical, as luminaire layouts must be planned according to the layout of the aisles.

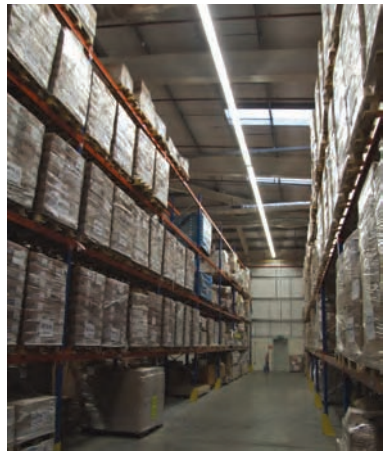

Figure 10.5 Lighting of a storage area

Luminaires are available with optics tailored to the requirements of high rack lighting (> 5 m). These luminaires have a high downward luminous intensity to maximise penetration into the aisles. A sharp cut-off in transverse plane ensures minimal light waste on the tops of racks and a broad axial light distribution maximises luminaire spacing along the aisles.

In 'concertina' storage mechanisms (bins or racks which push together to reveal access aisles) continuous fluorescent trough reflectors are mounted above the bins and at 90 deg to the aisle openings. Consideration should be given to localising the lighting according to occupation of the access aisles, e.g. pull cord switching or presence detection controls. This will avoid wasted energy due to all the luminaires being needlessly switched on.

With random bulk storage it is best to use wide distribution luminaires in a closely spaced array. This will help to minimise the effects of shadows due to stacking and maximise vertical illuminance.