

## Digest

## Selecting lighting controls

## Paul Littlefair

Lighting controls can give important energy savings and their reasonable provision is required by building regulations whenever lighting work is carried out in buildings that are not dwellings. When choosing lighting controls, it is important to take into account the type of space, how it is used and the amount of daylight available. This Digest explains how to do this and describes the common types of control and how to calculate energy savings. It will be of interest to building owners, designers, energy auditors, building services contractors and building control bodies.

## 1 Introduction

Appropriate lighting controls form an essential part of any lighting system (Figure 1). Controls allow the building occupants to take charge of their environment. They can also give significant energy savings, up to 30 to 40% or more in some types of building<sup>[1]</sup>. Their reasonable provision is required by building regulations whenever lighting work is carried out in buildings that are not dwellings<sup>[2, 3, 4]</sup> (if more than 100 m<sup>2</sup> of floor area is being provided with new fixed lighting, the work is notifiable under The Building Regulations Part L<sup>[3]</sup>). Lighting controls in commercial and industrial buildings may also be eligible for Enhanced Capital Allowances<sup>[5]</sup>, and they can help the building achieve BREEAM credits<sup>[6]</sup>. Modern types of control can help the building manager rearrange the internal spaces, avoiding costly wiring. And controls can be used to change the lighting at preset times (scene setting) giving changes of mood in, eg restaurants and public spaces.

Lighting controls should match the needs of building users. BRE IP 6/96<sup>[7]</sup> gives guidance on this issue. Control systems have to be appropriate to the type of space where they are fitted, and they need to be safe. Section 3 of this Digest explains how to select the best type of control for a particular application.



**Figure 1:** Lighting control in SNOG stores is by programmed scene setting, with new lighting effects starting at set times throughout the day. Staff can also override the control to select different dynamic 'looks'. A master on/off control enables all the lighting to be turned on and off at the start and end of the working day (© Pharos Architectural Controls).

## 2 Types of control

A wide variety of control types are now available. These are defined in sections 2.1 and 2.2.

## 2.1 Manual control

Manual control involves direct control by the occupants. This can include switching, step switching or dimming. Dimming is usually preferable, because it can allow the occupants to select the level of lighting they require. Often, people might prefer a lower illuminance level, saving energy.

Manual control should be arranged so that areas with different levels of daylight (usually rows of lights parallel to a window wall) can be controlled separately; and individual workstations or work areas can also be controlled separately.