

## Information Paper

## Control of solar shading

Paul Littlefair

**A wide range of dynamic shading systems is available. The way these systems are controlled can have an important impact on building energy efficiency and on occupant comfort and wellbeing. This Information Paper gives guidance on whether to use automatic or manual control or a mixture of the two, and describes control strategies and ways to implement them. It will be of interest to building designers, services engineers, shading manufacturers and installers. It replaces BRE Information Paper 12/02, which is now withdrawn.**

## Introduction

Solar shading can have a major impact on building energy use and occupant comfort (see *Solar shading of buildings*<sup>[1]</sup>). Moveable shading is especially appropriate for many buildings. During times of peak solar gain such shading can reduce cooling loads<sup>[2, 3]</sup> and overheating. Under cloudy conditions, or in winter, it can be retracted to allow daylight and useful solar gain to enter the building, thereby reducing the building's dependence on electric lighting and its heating requirement.

This strategy requires that the shading be appropriately controlled. Otherwise unwanted solar gain may enter the building, causing overheating. Occupants may experience glare from the sun and be unable to operate the shading to alleviate it. Conversely, and more commonly, the shading may be in place at times when it is performing no useful function; this can lead to excessive use of electric lighting and occupant complaints about loss of view out.

Manual operation of shading systems by the occupants using cords, chains or crank handles is still common. This type of control is principally used for internal blinds, although some external and most mid-pane systems can also be controlled in this way.

However, a wide range of motorised systems, including battery- and solar-powered options, is now available for all



**Figure 1:** Occupant control of motorised blind using a wall-mounted controller. The controller fits in a holster on the wall, so can be removed and used as a hand-held remote

Nice Group: 1706377

types of shading device. Motorised operation is generally more expensive, but has a number of advantages:

- Control by the occupants is often easier; a wall switch or hand-held remote control (Figure 1) is usually easier to operate than a pull cord or crank handle, particularly for disabled users.
- As there are no cords or chains, motorised blinds can be a safe option where babies and young children may be present.
- In dwellings, timed operation of blinds can make it look as if someone is at home when the occupants are away.
- For large shading systems or where access is limited, mechanical control by cords or handles may be difficult or impossible. Motorisation allows a number of blinds to be moved at the same time using a single press of a button, eg in a large space like a hall or atrium.

