

People-friendly lighting controls

Stephanie King, Paul Littlefair,
Gareth Howlett, Feride Sener and
Cosmin Ticleanu

Lighting controls offer substantial energy savings, and new techniques, such as touchscreens, scene setting and colour-changing LEDs, allow uniquely flexible and sophisticated control. However, clear and accessible control systems interfaces are vital if users are to control the lighting properly. This Information Paper explains how to design lighting control interfaces that are easy to use and understand and give appropriate feedback to users. It will be of interest to controls manufacturers, lighting designers, building services consultants, ergonomists, facilities managers and building owners.

Introduction

In 2012, lighting accounted for 41% of electricity consumption in the UK services (including commercial) sector^[1]. Improving the energy efficiency of lighting can therefore contribute substantially to overall energy savings. Lighting controls have a key role to play here. Good lighting control systems can prevent energy from being wasted by lighting unoccupied or daylight spaces, or providing too much light when less might be preferred^[2]. Energy savings of up to 30 to 40% or more are achievable in some types of building^[3].

However, effective lighting control systems are more difficult to achieve in practice than they might appear. In previous studies carried out for BRE on lighting control systems in offices^[4], controls were rated from three different viewpoints: manageability, user satisfaction and energy efficiency. Only one third of the control systems were reasonably successful in all three categories, although significant scope for improvement was identified for most of these systems. One third failed badly in at least one category, and the remaining third were problematic in all three categories. In general, the lighting controls were falling short of expectations. Some had not been commissioned correctly^[5], so that they did not perform tasks



Flexible controls, used in a retail setting, allow shoppers to change lighting settings in the fitting rooms, between simulated 'day', 'dusk' and 'night' (© Boux Avenue)

as designed. Another important reason was that the wrong controls had been used in the wrong places, for example fully automated controls where the occupants would have liked to control the lighting themselves. This led to the development of BRE guidance^[2] on selecting appropriate lighting controls based on the type of space and whether it is daylight or non-daylit.

Another key issue was found to be the interface between the control system and the occupants and managers. Too often the controls were not straightforward and easy to use. Occupants were also frequently unaware of the features of control systems, and lacked information and training on their use.