ESTA

energy services and technology association

lighting controls

applying controls for productivity safety and energy efficiency

introduction

Every organisation, both private and public, needs to control its costs to maintain a healthy balance sheet. Energy costs come straight off the bottom line and one of the biggest consumers of energy in most buildings is lighting. So controlling your lighting can energise your business, illuminate your growth potential and spotlight ever changing mandatory standards.

Effective and efficient lighting control saves energy cost but is also essential to optimise working conditions and productivity, to ensure the safety of personnel and enhance their feeling of security. Poor lighting control is evident in many office buildings [including Whitehall!] that are fully lit into the night.

energy cost savings

Very substantial savings can be made using technology that is well established and commercially viable. Most lighting control projects have a payback within 6-18 months. ESTA members have a wealth of experience in controlling lighting from simple stand-alone controllers to extensive and comprehensive lighting management systems.

Our role is to help you identify the solution that best addresses your operational needs, energy savings and return on investment. All backed by the peace of mind that ESTA member companies are the leaders in their field.

enhanced capital allowances

Many ESTA members' lighting control products qualify for 100% Enhanced Capital Allowances and with short paybacks are frequently featured in the Carbon Trust's interest free loan scheme and the Salix Finance public sector financing scheme.

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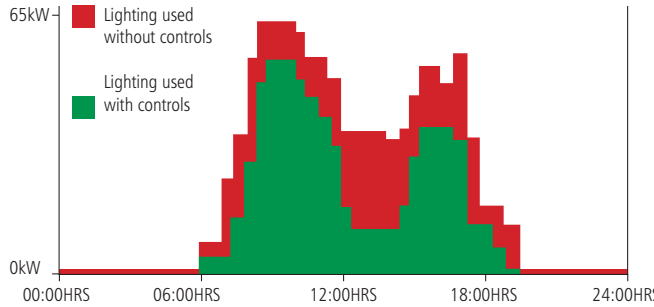
mission statement

energy

Lighting controls are a proven and effective method of reducing electricity consumption and hence saving CO_2 emissions. Typical savings are above 40%, which can translate into between 20% and 40% of the energy supplied to the whole building.

Example of energy saving in a small school



SAVING of over 40% of lighting electricity costs

scene setting

Lighting controls are able to adapt a lit space to suit a variety of uses and moods in both the commercial and domestic environment. The selection of appropriate lighting mixes and levels must be easily understood by, and accessible to, the user.

personal (control)

A lighting control solution should permit users as much choice of lighting levels as possible. Local overrides should be obvious and readily available. It is an established fact that applications where staff have such access are the most energy efficient.

flexibility

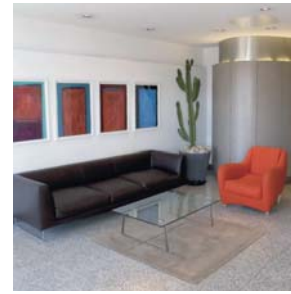
Lighting controls have established an enviable reputation for the flexibility they offer to buildings. In today's fast moving world businesses change and evolve; their buildings have to respond and lighting controls ensure they do.

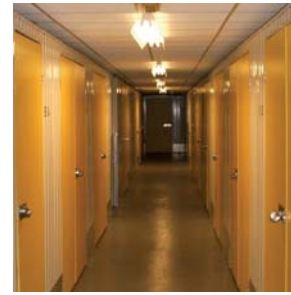
comfort

More and more lighting installations are being designed to enhance comfort in the workplace. Lighting controls provide the means to maintain illumination and allow user control.

safety

Many lighting control solutions can facilitate the testing of emergency lighting (a legal requirement) as well as ensuring circulation lighting is kept ON for late workers.





definitions

Basic definitions of stand-alone, dedicated lighting control systems and integration into BM services.

stand-alone lighting controls

A 'stand-alone' lighting controller is usually a self-contained, room-based solution. It can involve occupancy detection, daylight switching or dimming and manual operation. However, it is not connected to any network and hence does not normally offer time-based control or corridor-linked operation.

lighting control system

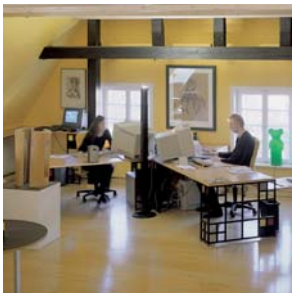
A lighting control system usually comprises a network of components designed to operate the lighting in part, or complete, building applications. Functionality includes occupancy, daylight linking, time scheduling, and interactive control. Such systems are also readily linked, or integrated, into wider building management systems.

BEMS integrated lighting

Co-ordinated into one system that includes the heating, ventilation and air-conditioning controls.

standards

All members' electronic switches comply with Directive 93/68/EEC (Electrical Equipment Safety Regulations 1994) and with Standard EN 60669-2-1 (Electronic Switches).



fundamental control

Whilst lighting control packages come in a variety of formats and offerings, controls fundamentally take one of four actions:

Turn lights OFF	Turn lights ON
Make lights DIMMER	Make lights BRIGHTER

These actions are required in a variety of circumstances including:

- Time of day; related to time of day [cleaning vs. full operation]
- People in occupation [presence detection; timed lighting]
- Internal lighting level affected by daylight [daylight linking]
- Scene setting [presentation vs. full meeting]
- Security tour; escape paths; emergency lighting
- Co-ordination with other building activities e.g. air-conditioning

design principles

Lighting controls make the lit area habitable, productive and comfortable for occupants and should minimise energy consumption and cost. Good design considerations are:

- Light levels DURING occupation must support the occupants' tasks
- Lights are OFF when area is NOT OCCUPIED
- When present, occupants can ALWAYS switch or adjust lights
- A safe escape route is ALWAYS visible
- Lighting should ENHANCE occupants feeling of security
- Decide flexibility needed for revisions to layout and use
- Controls and operation match management structure and capability
- Ensure occupants KNOW how to use the lighting controls.

about ESTA

ESTA, the Energy Services and Technology Association, is the UK's leading Energy Management industry association. ESTA focuses on demand-side energy management and efficiency across all sectors and operations including buildings, processes and transport.

Energy consumption and cost are the primary considerations but ESTA also considers the positive impact of energy management measures on security of energy supply to organisations' sites, the advantages in terms of reputation of responsible corporate citizenship and the legal requirement to meet legislation and regulation.

ESTA members' activities span the lifetime energy management of organisations including concept, design, construction, operation, maintenance, refurbishment and updates.

ESTA has over 100 members who supply products, systems and services supporting all aspects of Energy Management and in particular measurement, control and management.

Visit **www.esta.org.uk** to find out more.

ESTA Lighting Control Group

ESTA Lighting control group members offer the full range of lighting control solutions from simple stand-alone switches and time-clocks through to advanced integrated systems with scene setting and reconfiguration to match changes in your organisation's business and activities.

Members can demonstrate projects in all sectors with excellent paybacks and they adhere to and advise on the design considerations outlined here.

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ESTA, PO Box 77, BENFLEET, Essex SS7 5EX
T: 01268 569010 F: 01268 569737
E: info@esta.org.uk W: **www.esta.org.uk**