ON THE 6th April 2006 Approved Documents L1A; L1B; L2A; and L2B came into effect in support of the Building and Approved Inspectors (Amendment) Regulations 2006, SI 2006/652 and the 2002 edition of Approved Document L1 became obsolescent. The full titles of the Approved Documents are given below:

- L1B - Conservation of fuel and power (Existing dwellings) (2006 edition)
- L2B - Conservation of fuel and power (Existing buildings other than dwellings) (2006 edition)

The changes in the guidance being offered by the Department for Communities and Local government (DCLG), formerly the Office of the Deputy Prime Minister (ODPM) have a number of implications for those involved in the design and installation of electrical building services such as heating control systems, air conditioning, interior lighting and exterior lighting.

This article addresses the guidance given for designers and installers involved in the provision of internal and external lighting services in new and existing dwellings given in Approved Documents L1A and L1B respectively.

Item b. of Requirement L1 in Part L (Conservation of fuel and power) states that reasonable provision shall be made for the conservation of fuel and power in buildings by providing and commissioning energy efficient fixed building services with effective controls.

Local authority Building Control departments will expect to see that measures have been implemented to satisfy this requirement as a condition to achieving Building Control approval for any proposed developments in new or existing domestic premises.

Fixed building services are defined in the Definitions Section of all the aforementioned Approved Documents as ‘any part of, or any controls associated with:

- Fixed internal or external lighting systems, but does not include emergency escape lighting or specialist process lighting;
- Fixed systems for heating, hot water service, air-conditioning or mechanical ventilation.’

Fixed internal lighting

In new dwellings (L1A – Para 42), and existing dwellings (L1B – Para 44), the provision of light fittings that only take lamps having a luminous efficacy greater than 40 lumens per circuit-Watt (l/W) would meet the statutory requirements. The lighting fitting as defined includes the lamp, control gear, and an appropriate housing, reflector, shade or diffuser or other device for controlling the output light). Circuit-Watts is defined as the power consumed in lighting circuits by lamps and their associated control gear and power factor correction equipment.

It is accepted that fluorescent and compact fluorescent lighting fittings would meet this standard. However, it should be noted that lighting fittings for GLS tungsten lamps with bayonet cap or Edison screw bases, or tungsten halogen lamps would not.

In the case of a dwelling being extended, or a new dwelling being created from a material change of use, or an existing lighting system is being replaced as part of re-wiring works such reasonable provision as described above should be made to allow dwelling occupiers to obtain the benefits of efficient electric lighting (L1B – Para 43).

Reasonable provision would be achieved in a new dwelling (L1A – Para 43) or in that part of an existing dwelling affected by the building work (L1B – Para 45) by the provision of fixed energy efficient light fittings numbering not less than the greater of:

- One fitting per 25m² of dwelling floor area (excluding garages) or part thereof; or
- One per four fixed lighting fittings.

It should be noted that a light fitting may contain more than one lamp.
In the case of existing dwellings, or where a new dwelling is created from a material change of use, this assessment should be based on the extension, the newly created dwelling or the area served by the lighting system as appropriate to the particular case.

Although the above recommendations would be seen as meeting the requirements of Part L, The Energy Saving Trust (EST) recommended higher performance standards for both new and refurbished domestic dwellings in section 5.2 of CE61 (Energy efficient lighting - guidance for installers and specifiers).

In the case of new dwellings, they suggest the following standards in terms of the percentage of all fixed internal fittings having a luminous efficacy in excess of 40 l/W:
- **Good practice**: 40%
- **Best practice**: 75%
- **Advanced practice**: 100%

In the case of existing dwellings, it is suggested that every opportunity should be taken to replace existing fittings with the aim of providing 75% of an energy efficient type.

Mention is also made of the potential to save energy through the provision of independent switching for lights and the placing of such switches in convenient and user-friendly locations. This will allow the occupants to use only those lights required at any particular time. It is also mentioned that a degree of energy saving may be achieved through the use of automatic controls and dimmers, but it should be borne in mind that dimming needs to be achieved by a reduction in consumed power for it to be considered energy saving. Regular operation of lamps whilst dimmed will result in an extended lamp life. It should be remembered however that dimmers cannot be used with two-pin compact fluorescent lamps.

Where light fittings are installed in less frequented areas like cupboards and other storage areas and loft spaces, these should not be counted (L1A - Para 44; L1B - Para 47).

GIL.20 (low energy domestic lighting) published by the Energy Saving Trust, provides guidance on identifying suitable locations within a dwelling to maximise the effectiveness of an energy efficient lighting scheme. It states for example that ‘most rooms can benefit from energy efficient lighting; however the greatest savings will be in rooms that are lit for longer periods and which have fittings that are likely to be retained by the occupants... a study of 39 households showed that those lit for the longest periods were the hall, lounge and landing.

However, it should be noted that difficulties can arise where energy efficient light fittings are installed in lounges and dining rooms, as owners of properties are most likely to remove and replace the efficient type fittings with fittings of their choice and to their taste in such locations.

Reference to the need to provide lighting fittings including shades, etc., in the 2006 edition of Approved Document L1 (ADL1), is an attempt to overcome the trend where inexpensive bare lamped pendant fittings were previously being installed without shades simply to meet the basic requirements. It is hoped that the need to supply shades or indeed the ability for occupiers to replace the originally fitted shade with one of their own choice, will result in householders retaining the energy efficient light fittings that have been installed.

GIL.20 continues, ‘low energy luminaires might sometimes be more appropriate in rooms with lower lighting use (e.g. kitchens) where more discrete light sources can be used, for example in under-cabinet lighting, as these are unlikely to be changed by occupants’.

Documents L1A and L1B both contain a reminder of the dangers associated with stroboscopic effect and the installation of mains frequency fluorescent lighting in garages. There is a possibility that moving parts of vehicles upon which work is being carried out, or the rotating blades or cutting wheels of power tools may appear to be stationary or moving slower than is actually the case. This could result in accidents or injuries occurring. The installation of fluorescent lamps with high frequency electronic ballasts in a garage could substantially reduce this risk.

### Fixed external lighting

Fixed external lighting is defined within the Approved Documents L1A and L1B as ‘Lighting fixed to an external surface of the dwelling supplied from the occupier’s electrical system. It excludes the lighting in common areas in blocks of flats and other access-way lighting provided communally.’

In the case of fixed external lighting, reasonable provision would be to enable effective control and/or the use of efficient lamps such that:

- **a. EITHER**: Lamp capacity does not exceed 150W per light fitting and the lighting automatically switches off:
  - i. When there is enough daylight; and
  - ii. When it is not required at night
- **b. OR**: the lighting fittings have sockets (meaning lamp holders) that can only be used with lamps having a luminous efficacy greater than 40 lumens per circuit-Watt. Compact fluorescent lamps would meet the standard in b.

GLS tungsten lamps with bayonet cap or Edison screw bases, or tungsten halogen lamps would not. (L1A - Para 45; L1B – Para 48). It should be remembered that the re-wiring works must comply with Part P of the Building Regulations, where applicable.

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**Publications referenced in the text.**

- Both of the above may be downloaded from www.est.org.uk/housingbuildings/standards
- All of the Approved Documents to accompany the Building Regulations may be downloaded from www.planningportal.gov.uk/england/professionals/en/11153141160382.html

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