

Hea01, Ene03 and Pol04

Lighting requirements

Content:

This guidance covers the following issues which relate to lighting:

- i. **Hea01** – Internal and external lighting levels, zoning and control.
- ii. **Ene03** – External lighting.
- iii. **Pol04** – Reduction of night-time light pollution.
- iv. Other issues which relate to **lighting**.

Actions:

- i. Design **internal lighting specification** in-line with Hea01.
- ii. Design **internal lighting zoning and controls** in-line with Hea01.
- iii. Design **external lighting** in-line with Hea01, Ene03 and Pol04.
- iv. Ensure these measures are achieved so to not impact on **additional credits**.

i. Hea01 – Internal and external lighting levels, zoning and control

The following standard lighting design and specification criteria must be achieved:

Internal lighting

1. Internal lighting in all relevant areas of the building is designed to provide illuminance (lux) levels and colouring rendering index in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. Internal lighting should be appropriate to the tasks undertaken, accounting for building user concentration and comfort levels.
2. For areas where computer screens are **regularly** used, the lighting design complies with CIBSE Lighting Guide 7 sections 2.4, 2.13 to 2.15, 2.20, and 6.10 to 6.20. This gives recommendations highlighting:
 - a. Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.)
 - b. Any area where a surface is used to reflect light into a space, such as up lighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this.
 - c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance.

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External lighting

1. All external lighting located within the **construction zone** is specified in accordance with BS 5489-1:2013 Code for the practice for the design of road lighting. Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. External lighting should provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night.

Zoning and occupant control

Internal lighting must be appropriately **zoned** to allow for **occupant control**. The required level of control will vary, depending on the building/assessment type. Zoning must be in accordance with the following:

- a. In office areas, zones of **no more** than four workplaces
- b. Workstations adjacent to **windows** or atria are **separately zoned and controlled** to other areas of the room/building
- c. Seminar and lecture rooms: zoned for presentation and audience areas
- d. Library spaces: **separate zoning** of stacks, reading and counter areas
- e. Teaching space or demonstration area **zoned separately**
- f. Whiteboard or display screen **zoned separately**
- g. Auditoria: zoning of seating areas, circulation space and lectern area
- h. Dining, restaurant, café areas: **separate zoning** of servery and seating or dining areas
- i. Retail: **separate zoning** of display and counter areas
- j. Bar areas: **separate zoning** of bar and seating areas
- k. Wards or bedded areas: zoned lighting control for **individual bed spaces** and **control for staff over groups** of bed spaces
- l. Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff

Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with **CIBSE Lighting Guide 5**.

The following are building specific lighting requirements:

Building type	Internal and external lighting requirements
Education Buildings	Manual lighting controls are easily accessible for the teacher while teaching and on entering or leaving the teaching space. Manual lighting controls need only be provided for staff, not the children.
Prison Buildings	Cells Lit to a maintained illuminance of 200 lux at tabletop level. In addition, there must be the facility (using, for example, dimming, step switching or separate task and general lighting) for the occupant of the cell to select a lower level of general lighting if required. Exercise yards Lit to a maintained illuminance of at least 10 lux. However, if such spaces are, or will be, used as sports facilities they must be lit to a maintained illuminance of 100 lux.
Court Buildings	Separate zoning is also provided for the following areas (as a minimum): <ol style="list-style-type: none">1. Judge's or magistrate's bench2. Dock3. Jury area

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	<p>4. Public seating area</p> <p>Lighting control of the zones in the above spaces, and the court as a whole, cater for the following settings:</p> <ol style="list-style-type: none"> 1. Full lighting (to allow cleaning etc.) 2. Normal lighting (for court sessions) 3. Dimmed (for the purpose of showing audio-visual evidence but allowing enough light for note taking).
Small spaces (less than 40m ²)	Buildings consisting entirely of small rooms or spaces (less than 40m ²) which do not require any subdivision of lighting zones or control will meet the zoning criteria by default.
Lighting zoning and control - auditoria spaces	<p>The controls specified will depend on the size and use of the space but a typical auditorium or lecture theatre with stepped seating and a formal lectern, demonstration or performance area would typically be expected to have lighting controls as follows:</p> <ol style="list-style-type: none"> 1. Full normal lighting (to allow for entry, exit, cleaning etc.) 2. Demonstration area lighting off and audience area lighting reduced to a low level (for the purpose of line slide projection, but allowing enough light for the audience to take notes) 3. All lighting off (for the projection of tone slides, colour slides, and for the purposes of visual demonstrations or performances) 4. Separate localised lectern lighting.
Internal areas excluded from the lighting zone requirements	<p>The following internal areas are excluded from the lighting zone requirements:</p> <ol style="list-style-type: none"> 1. Media and arts production spaces 2. Sports facilities (exercise spaces only, including hydrotherapy and physiotherapy areas).

ii. Ene03 – External lighting

The Ene03 credit can be awarded where there is either **no external lighting** (which includes lighting on the building, at entrances and signs) or where **compliant** with the following:

- a. The average initial luminous efficacy is not less than 70 luminaire lumens per circuit Watt
- b. Automatic control is used to prevent operation during daylight hours (timer or daylight sensors)
- c. Presence detection is used in areas of intermittent pedestrian traffic (i.e. the lighting is not permanently on)

iii. Pol04 – Reduction of night-time light pollution

The Pol04 credit can be awarded where there is **no need for external lighting** (and this does not adversely affect the safety and security of the site and users) or where **compliant** with the following:

- a. The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011.
- b. All external lighting (except for safety and security lighting) can be **automatically switched off** between 23:00 and 07:00.

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- c. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes.
- d. Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements.

iv. Other issues which relate to lighting

Issue	Requirement
Hea06 - Security	No specific requirement, but lighting should satisfy the Suitably Qualified Security Specialist (SQSS/ALO) that the security is not compromised by poor lighting.
Hea07 - Safety	'Safe cycle lanes' and 'safe footpaths' require adequate external lighting in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas.
Tra02 – Sustainable transport measures	Any cycle storage facility has adequate lighting; demonstrated by meeting the lighting criteria in BREEAM issue Hea01 Visual comfort.

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